pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMENT RESPONSE DOCUMENT
Part 2 of 2 Appendices

Environmental Protection Performance Standards at Oil and Gas Well Sites

Title 25. Environmental Protection
Part I. Department of Environmental Protection
Subpart C. Protection of Natural Resources
Article II. Land Resources
Chapter 78. Oil and Gas Wells

43 Pa.B. 7377 (December 14, 2013)
Environmental Quality Board Regulation #7-484
Independent Regulatory Review Commission #3042

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Appendix 1

Breaking News ALERT Breaking News ALERT**Breaking News ALERT****

Fracking Linked to Birth Defects in Landmark Study

A recent, peer-reviewed study has linked birth defects to the presence of fracking within a 10-mile radius of the mother's home.

This important study, conducted by researchers at the Colorado School of Public Health and Brown University, found "an association between the density and proximity of natural gas wells within a 10 mile radius of maternal residence and prevalence of congenital heart defects" as well as possible links to defects of the brain and spinal cord.

With the explosive growth of fracking and the drilling of new oil and gas wells across the United States, including in large population areas, we are placing our infants and children at risk of devastating birth defects and other harms.

Read the enclosed letter and take action by joining Food & Water Watch's national campaign to ban fracking. Thank you.

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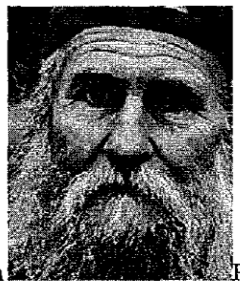
Home » Corporatocracy Watch

Fracking Victim dies of Rare Brain Cancer

une 10, 2014 # 1:44 pm # Corporatocracy Watch # No Comment

kmark and

racked farmer died in  Pennsylvania this week of a rare form of brain cancer. Harassed, threatened and soned by frackers for the last seven years of his life, Terry Greenwood was 66

racking company representative sat in Greenwood's kitchen in 2007 and asked him if the company could frack for natural gas on his d. The state of the law in the land being what it is – meaningless, citizens' rights second to drillers' – Greenwood didn't have the right efuse, but he told the company man he would fight for his property, for his rights. The company man told him he didn't stand a chanc t he didn't have enough money to fight the fracking giant protected by the Halliburton loophole – which exempts frackers from any aningful regulation as well as the clean water act – and sanctioned and promoted by local, state and national government entities.

nonth later, the drilling had contaminated the well from which Greenwood had drawn water for himself, his pets and his cattle for the vious 20 years. The fracker then threw him a bone – not out of the goodness of its little black heart but at the behest of county gulators" (Read: *Industry lapdogs*) – drilling five water wells, none of which produced drinkable water.

er a fracking spill the next year, ten of 18 calves born on Greenwood's property were stillborn; one was born blind, another with a ft palate. The next Spring, Greenwood's lone bull, which would normally sire at least nine calves a year, became sterile.

racking Kills Animals First, then the People

killed the cattle, and it'll kill the people next," Greenwood said in an interview.

d now Terry – our canary in the mineshaft – Greenwood is dead. One can only wonder if the rest of the world will take heed.

: fracking industry can, of course, count the ways Terry Greenwood's brain cancer death can be explained away – farmers have a hig idence of cancer, anyway; brain cancer is growing as a cause of death across the country (a phenomenon entirely unrelated to frackin course); his rare cancer was only coincidental with the fracking; Erin Brokovitch would need 20 years of studies to prove that people ng next to frack sites are at a greater risk or cancer, etc. – but there are other fracking deaths that cannot be so easily explained away e the family of three who died after drinking water from their own well, which was contaminated by fracking chemicals.

as Cancer Clinics are opening facilities at a record rate near fracking operations all around the Barnett Shale. Business is great for cking and for the ever-growing cottage industry built on cancer, which, even those in the industry now admit is caused mainly by ironmental toxins, some of the most hazardous of which fracking spews daily into our air and water – hydrogen sulfide, methane, mmonium fluoride (insert your personal favorite here) – in the name of bringing us jobs (in numbers hugely exaggerated by industry) l clean fuel to help curb global warming (an outrageous lie of which methane releases from fracking operations prove to be a lie). Clea ter, meanwhile, which fracking uses and wastes by the millions of gallons, is more valuable than oil. This is not hyperbole. It is fact. As Pentagon, or T. Boone Pickens, or Halliburton, all of whom or which are quietly acquiring whatever aquifers are not being rapidly troyed by frackers.

'ater more Valuable than Gas

ater's more important than gas," Greenwood liked to say. "Once you ruin the water, you don't have nothing left."

a punch line, Terry Greenwood, with his grizzled beard and haunted, melancholic eyes and visage, looks like one of those homeless et prophet anachronisms that is so easy to ignore when you're coming out of a Starbucks, say, or on your way to shop for some ey new s***. I will just hope, along with you, that he's not a prophet; but I won't bank on it. Smart investors will put their cash in cking operations and cancer clinics, then pray that they live a long and healthy life. They won't think about the poor bastards living

racking Acrostic

Ken Jones

ertile farms poisoned by its chemical swill
anch land ruined as the cattle fall ill
gainst these Mother Earth despoilers stands
ases won by The Matthews' Firm Hand.
iss our air goodbye to its hydrogen sulfide
ito the ground flows the methane-no place to hide
ow these first verdicts can open debate
ive us hope the rape can stop before it's too late

Resources:

tp://nofracking.com/

tp://www.texassharon.com/

bituary of Terry L Greenwood

racked Farmer dies of Rare Brain Cancer

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Published: February 19, 2013 - Updated: February 20, 2013 11:12 pm

Residents testify to lack of DEP oversight at policy hearing

(http://www.observer-reporter.com/storyimage/OR/20130219/NEWS01/130219195/AR/0/AR-130219195.jpg&MaxW=1319&MaxH=990&q=70)

Mt. Pleasant Township neighbors Chris Lauff and Kim Staub testify before a House Democratic Policy Committee hearing Tuesday.

(http://www.observer-reporter.com/storyimage/OR/20130219/NEWS01/130219195/EP/1/1/EP-130219195.jpg&MaxW=1320&MaxH=990)

(http://www.observer-

eporter.com/storyimage/OR/20130219/NEWS01/130219195/EP/1/2/EP-
30219195.jpg&MaxW=1000&MaxH=1333)

'ive Pennsylvania residents, including two from Mt. Pleasant Township in Washington County, testified efore a House Democratic Policy Committee hearing Tuesday that the state Department of nvironmental Protection has failed to provide the necessary oversight on natural gas drilling.

Veighbors Kimberly Staub and Chris Lauff said since natural gas drilling took place near their homes on 'ort Cherry Road, they are left wondering if they will suffer health problems someday as a result of the ctivity.

auff set a jar of muddy water on the table in front of him to demonstrate the condition of his well vater. The natural gas company did admit responsibility for his water loss, and Lauff has since onnected to a public water supply.

ut Lauff said the DEP fails to abide by its own Best Management Practices when it comes to dealing vith the drilling industry.

Vo one from the DEP attended the hearing, which state Rep. Jesse White, D-Cecil, termed "a great lisappointment." White has introduced House Bill 268 that would require full disclosure of the lepartment's test results.

)EP spokeswoman Katy Gresh said the DEP has responded previously to White on that subject.

It would be irresponsible for DEP to provide homeowners with raw data that has not been quality-ssured and quality-controlled. Raw data is, quite simply, unreliable and not valid in the eyes of any aboratory, public or private," she said.

t the end of the 2 1/2-hour hearing, White said, "what we heard from everyone today was not an ttack on drilling. I'm sure we realize there are economic benefits to drilling. I think what we're hearing nore than anything is that the DEP needs to step up and be the enforcement agency that homeowners nd even the industry wants them to be," he said.

taub, who contacted the DEP when she noticed an odor from an impoundment last fall, has yet to eceive any case evaluation about her farm and its air quality despite repeated calls to the DEP.

auff, who said a toxicologist told them the only treatment for his exposure to chemicals is avoiding hem, said his family has lost the enjoyment of their home. He supports the need for America to become nergy independent if it is done safely and responsibly.

"The question we should be asking ourselves is not who is in favor of or who is against natural gas drilling, but rather, is there proper oversight to ensure the healthy and safety of the residents of our commonwealth by our state officials and government who are tasked to do so?" he asked.

Rep. Kevin Boyle, Philadelphia County, said, "I apologize for DEP. As Pennsylvania citizens, you deserve better."

Judy Armstrong Stiles, who wore a white cotton glove on her right hand because of skin problems she believes are associated with natural gas drilling, said her family was forced to move from their Bradford County home.

She told the panel that medical officials determined they had heavy metal poisoning, which she attributes to numerous chemicals in their drinking water from a gas well pad three miles away.

Her voice cracked when she explained her husband ended his life last year after being unable to deal with pain from intestinal cancer.

"I just want to know where were those agencies that were supposed to protect us?" she asked. "We paid thousands of dollars we couldn't afford to test our water. I think that was DEP's job."

Earthworks eastern program coordinator Nadia Steinzor said DEP's decision to provide only partial water test results to homeowners is a significant lapse in responsibility and transparency.

She called on the state legislature and DEP to make a number of changes, including providing testing prior to drilling activity and making that information publicly available, expanding parameters on air and water testing, and collecting comprehensive data on complaints.

Melissa Troutman, Mountain Watershed Association's outreach coordinator, said the policy for oil and gas extraction in Pennsylvania appears to be "permit first, test later." No new permits should be awarded until a thorough investigation of the department's policies and procedures is conducted, she said.

Also speaking were Steve Hvozdovich, policy associate with Clean Water Action, and Erika Staaf, a clean water advocate for PennEnvironment.

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IWLA-Harry Enstrom Chapter

OUR MISSION: To conserve, maintain, protect and restore the soil, forest, water, and other natural resources of the United States and other lands; to promote means and opportunities for the education of the public with respect to such resources and their enjoyment and wholesome utilization.

Dallas Slagle-Newsletter Editor

President's Notes

Our chapter has over 100 members and growing. We have 14 new members since September. We are on the right path and plan to continue to move forward in our fight for clean air and water. We will push for the state legislature to protect our air and water. Let us all work together for the common good for all the people. I would like to thank each and every member for their support. I know that many of you cannot attend the meetings but your membership is vital in our moving forward. We all know that numbers do speak and if you can bring in new members our voice will get louder.

Our Newest Members:
Eva Westheimer, Caitlin McCoy, Sue Hecht, Greg McDonald, Charles Schury, Michael Hughes, Tammy Adams, Tom Hritz, Peyton Chambers, Jack Schuessler, Jeffery Schuessler, Dale Trader, Sophia Trader, William Hess.

Again, please accept our thanks for your membership and commitment to the Harry Enstrom Chapter of the Izaak Walton League of America.

- *Who we are Presentation*
- *Ryerson & Duke Lake*
- *Fishing*
- *Ike Meeting Participation*
- *National Mid-Winter Meeting*
- *IWLA Division State Meeting*
- *Peyton Chambers*
- *Radiation*

Act 54: Deep Mining Impact Report

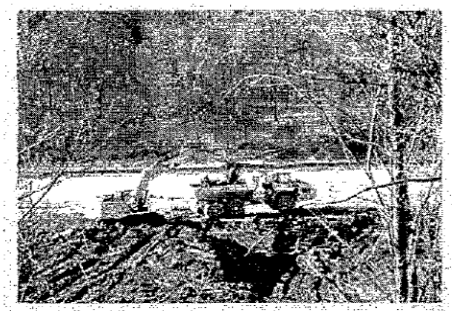
The Act54 report uncovers that over 40% of streams that were undermined in PA from 2008-13 experienced significant flow loss or pooling. The ability to repair damage to streams that have been undermined and have experienced subsidence impacts remains largely unknown.

THE IZAAK WALTON LEAGUE OF AMERICA

Who We Are

The Chapter Board of Governors has been working on a new presentation explaining the inception and purpose of the IWLA and Harry Enstrom Chapter. We are planning on going to local government officials, schools and sportsmen organizations discussing the IWLA. We have a great reputation in the tri-state area and beyond but we need to build our footprint in Greene County.

Ryerson & Duke Lake



The work is underway to remove the silt from Duke Lake. The silt is being hauled to the Mather Gob pile and the reclamation of the pile is underway. President Dufalla and members Ray Rutan, Al Churney and Jan Churney have been monitoring the situation. The removal process is coming along nicely and the future is getting brighter. If we look back, the idea of the silt being placed on the Mather Gob pile was presented by the IWLA several years ago. The IWLA has been actively trying to get the Mather project finished since 1988. We have been working the Duke Lake project since the dam failure in 2005. The Mather project was set back years when $4.9 Million dollars of growing greener money was spent with minimal results.

Fishing

The slight warming trend that happened in early February brought out many fishermen in our trout stocked area. The fishermen were doing well however the arctic blast has slow everything down. Along with this the IWLA has again applied for a grant of $3000.00 to help stock fish for our Kids' and Ladies Day event.

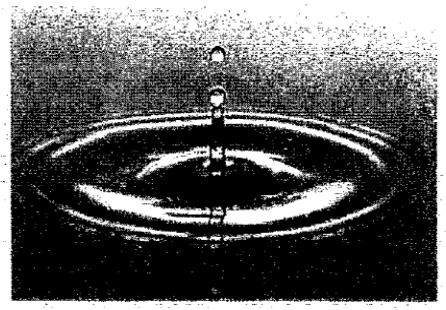
Ikes Attend Meetings

Local Meetings

Over the past several weeks many Ikes have been involved in attending meetings and explaining our concerns with water issues. Ken Dufalla has been attending the Greene County Soil Conservation meetings and keeping their members up to date on the water quality issues in the area. Ken Dufalla, Eva Westheimer and Mike Hughes attended the latest meeting of the Tri-County Joint Water Authority and explained the difficulties of treating raw water coming into the plant. The treatment plants are not designed to remove chemicals such as Bromides and Strontium along with Radium 226, Radium 228 and Thorium. Along with Tri-County, the overwhelming majority of the 41 other reporting water suppliers have similar or worse problems with supplying clean water. Ken Dufalla and William Hess attended the East Bethlehem Commissioners meeting and explained some of the problems the area is facing with our water. Future meetings may be forthcoming.

National IWLA Mid-Winter Meeting

State Director Chuck Hunnell recently attended the mid-winter meeting of the National IWLA in Fort Myer, Florida. Chuck was able to explain our water and air situation to many of the members and gained massive support for our issues. Chuck was also informed the National is aware of our issues and they support our work 100%. Chuck stated that we were complimented on the work of the Harry Enstrom Chapter and the work of our chapter should be a model for all chapters in dealing with conservation issues. We thank Chuck for his efforts. Keep up the great work.



Safe water – Safe Life

PENNSYLVANIA STATE DIVISION

KEYSTONE STATE

State Division Winter Meeting

The State Division meeting of the IWLA was held in Bedford, Pa. The Harry Enstrom Chapter was very well represented. Of the 20 state members attending the meeting, our chapter had 9 members present. Remember, our chapter has to travel some of the longest distances to many state meetings. The following members were present; Randi and Peyton Chambers, Clyde and Donna Cooper, Alex Shields, Dallas Slagle, Ken Gayman, Chuck Hunnell and Ken Dufalla.

Our chapter tried to gain support for the National Policy on Fracking but for some inexplicable reasons several chapters will not commit to supporting this National Policy. The feeling presented was it is a Harry Enstrom exclusive problem when in fact the resolution that became policy was a State resolution. We are still pursuing the issue and now currently have the support of 4 chapters.

Peyton Chambers

Our chapter is proud to announce that our youngest chapter member, Peyton Chambers, 16, a sophomore at Waynesburg Central High School, was selected as a National Youth Delegate for the 2015 Washington Youth Summit on the Environment. Chambers will be one of a dozen students to represent Pennsylvania at the Summit. The Washington Youth Summit on the Environment will be hosted by George Mason University from June 28 to July 3.

The Harry Enstrom Chapter and the generous donations of three chapter members were able to provide the funding for her participation.

We wish Peyton the best of luck on her trip and look forward to her post summit report.

Radiation

On April 10, 2014, the DEP did water testing on Ten Mile Creek near Clarksville area and the Clyde Mine discharge. The tests were requested by the IWLA on November 4, 2013. The results of the testing were quite shocking to say the least. High levels of Radium 226, bromides, strontium, sodium, TDS, electronic conductivity and some uranium were found from the discharge itself. An example of this high level of was Radium 226 at 301 PCI/L when the drinking water standard for Radium 226 and Radium 228 combined is 5 PCI/L. In the stream above the Clyde mine discharge, high levels of Radium 226, Radium 228, and thorium were found. The IWLA has sent these results to the EPA and the PA Fish & Boat Commission. The FBC was asked if the water is safe to stock trout in the stream and the DEP was asked as to the source of these elements. As of yet, we have no word back on these questions. The results did spark the interest of the West Virginia Research Institute and the EPA. Only time will tell if anything comes of the results.

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Fracking's Air Pollution: Disgusting, Toxic and Legal – December 18, 2014

Laura Peltier with **Baltimore Fishbowl** reports on how EHP "sprung into existence to provide health care and support for people living near gas extraction." In addition, the article touches on EHP's Speck Monitor, which monitors particulate matter.

Senators Ask How to Address Fracking-Related Health Issues – October 1, 2014

Jon O'Connell from the **Wilkes Barre Times-Leader** reports on a senate hearing which discussed the inefficiency of state agencies in tracking and reporting data on natural gas production. At the hearing, those who testified said that "private community-minded interests have been working to fill in the gaps and find help for those who feel natural gas development may have caused them to become ill."

Yale Study Shows Potential Link Between Health Ailments, Gas Wells – September 11, 2014

Emily Petsko with the **Observer Reporter** reports findings from a Yale University study. The study showed a potential correlation between the proximity of well sites and symptoms such as dermal and upper respiratory symptoms. Recently, researchers have been drawn to Pennsylvania – especially Washington County – because of the high level of unconventional natural as development. Brian Schwartz, head researcher for the ongoing John Hopkins study stated that, "Pennsylvania is really a very, very important state to study – one of the most rapid of the states to develop this industry." He continued by saying, "What's more important about Pennsylvania is that lots of people live in the counties where this is going on."

SWPA-EHP: A Model for Fracking States – August 15, 2014

From the Styx by Peggy Tibbets states that, "EHP is a bunch of scientists and medical professionals who decided to address the public health impacts head on with or without the government. With the help of private funding they conduct their own research, air & water monitoring, health databases, and provide medical advice and assistance to people in impacted areas." She goes on to state "these professionals said, 'Forget the studies, let's deal with the real problems right in front of us.' They responded to a public health crisis."

Air Monitors Provided to Residents Near Marcellus Sites – July 19, 2014

Emily Petsko reports for the **Observer-Reporter** about residents who have received Speck air quality monitors in Washington County. The article notes that EHP has "set up a new protocol in conjunction with Yale University to study the air quality during emergency situations, such as the incident in May when lightning struck the MarkWest plant and caused a gas leak."

With No Health Registry, PA Doesn't Know the Impact of Fracking on Health: Other Studies are Underfunded – April 30, 2014

Natasha Khan reports for **PublicSource** on the fact that there is no state-funded health research of shale operations in Pennsylvania while making note of EHP's smaller, community-centered health projects. Observing that EHP, uses "public-health researchers, toxicologists and medical professionals to study health impacts from fracking, (and) also staffs a nurse practitioner who evaluates people who think they've been sickened by drilling," Khan states that "It may be the only outlet in the country doing health-related research and providing medical attention in shale communities."

Khan goes on to report that: "In June, the Health Project published a health survey of people who live near drilling sites in Washington County. Between 2012 and 2013, the project found 27 cases of sick people who believed their symptoms were caused by air and water pollution from nearby drilling. Their symptoms included skin rashes, eye irritations, breathing problems, headaches and nosebleeds. Researchers and medical professionals at the project continue to monitor them, Rippel said.

In March, the project released a study that suggests common air-monitoring techniques used by state and federal regulators don't protect the public against health threats. The techniques fail to record harmful air emissions that spike during different stages of gas-drilling operations, researchers found. "And we absolutely feel that those spikes are associated with poor health outcomes," Rippel said."

Dangers of Fracking the topic at Villa Maria – April 28, 2014

Mary Grzebieniak of the **New Castle News** reports on a presentation EHP's NP-C Family Nurse Practitioner, Suann Davison, gave at Villa Maria last week before an audience of 150 concerned community members. The former Major in the U.S. Air Force stated, "gas and oil drilling puts hazardous chemicals into the environment through seismic testing, wellpad construction, drilling, fracking, wastewater, flaring and gas production and processing." Davison further noted that "common health effects from these chemicals include neurotoxicity, skin irritation, respiratory problems and gastrointestinal or liver damage."

Texas: When Fracking Comes to Town – April 27, 2014

Alex Halperin with ***Al Jazeera America*** reports on Northern Texans who live near gas wells and their fears for their health. EHP's Dave Brown is quoted as stating: "The gas industry has provided health data on its own workers who labor on gas pads and bear the greatest risk of exposure to toxins. That is where a proper health study would begin."

Air Monitoring in Fracking Areas Fails to Detect Spikes in Toxic Emissions, New Study Says – April 3, 2014

Lisa Song and Jim Morris for ***The Center for Public Integrity*** reports on the Article "Understanding Exposure From Natural Gas Drilling Puts Current Air Standards to Test", written by EHP's public health experts and published in the peer-reviewed journal, Reviews on Environmental Health."

In Fracking Fight, a Worry about how Best to Measure Health Threats – April 1, 2014

Naveena Sadasivam of **ProPublica** reports on EHP's Article "Understanding Exposure From Natural Gas Drilling Puts Current Air Standards to Test". written by EHP's public health experts and published in the peer-reviewed journal, Reviews on Environmental Health."

NGO's Address Health Impact of Extraction of "Shale Gas" – March 19, 2014

Maria Saldana of Mexico's El Universal News reports in Spanish on presentations made by EHP's Raina Rippel, Frac Tracker's Samantha Malone, and the Izaak Walton League of Pennsylvania's Ken Dufalla to the State Department Roundtable on Unconventional Natural Gas Development sponsored by the League of Women Voters. Click here for a rough English translation of Ms. Saldana's report. For a copy of the prepared written remarks of Raina Rippel click here.

Act 13 ruling Buoys Residents near Trax Farm Gas Well: Union Township Homeowners Want More Local Control – Feb 22, 2014

Anya Litvak of the Pittsburgh Post-Gazette writes about the local community near the EQT gas drilling at the Trax Farm and their response to a new ruling by the Pennsylvania Supreme Court declaring unconstitutional parts of Act 13, which limited local zoning control of natural gas wells. The article notes that EHP "has installed air monitors in several homes..."

Meeting looks at Drilling Near Schools – Sept 27, 2013

John Bojarski, staff writer for the Butler Eagle reports on a community meeting held in Butler, PA sponsored by Marcellus Outreach Butler to discuss issues related to flaring near Summit Elementary School in the Butler School District. EHP's Raina Rippel advised the community residents that homeowners should consider where facilities are. "If they are two miles away or one mile and not downwind, she said there is not much to worry about...However, she said homes within a half mile of natural gas facilities could face pollutants. "Anything within a half mile, I'd be concerned about it.'" Rippel also noted "that weather and other conditions matter. Cloudy days with no wind cause more pollution to stay near the earth's surface and near homes. Pollutants also are more likely to stay near the surface at night."

Study: Gas Wells Leave People "Vulnerable" to Health Hazards – Sept 27, 2013

Rick Shrum, Business reporter for the Observer Reporter reports on the results PennEnvironment Research & Policy Center released in a report titled "The Spreading Shadow of the Shale Gas Boom: Fracking's Growing Proximity to Day Cares, Schools and Hospitals" which found 462 day care centers, 446 schools and 15 hospitals are located two miles or less from a permitted fracking well site in Pennsylvania. "We are putting vulnerable populations, particularly children, in the red zone," Raina Rippel said in

a news release. She is the director of the Southwest Pennsylvania Environmental Health Project, based in Peters Township. "Given known asthma rates in Pennsylvania," Ribbel continued, "the proximity of gas drilling industrial activities to care facilities and schools, and the known health impacts of pollution such as diesel emissions, we know these vulnerable populations are at risk.

Understanding Fracking: Arguments for and Against Natural Gas Extraction – Sept 9, 2013

Samantha-Rae Tuthill, staff writer for AccuWeather.com reports that "Those in the public health sector are worried about the untested long-term results on residents who live near fracking sites due to potential for the fracking chemicals to create air or water pollution. "It's essentially an experiment," Michael Kelly, media liaison for the Southwest Pennsylvania Environmental Health Project (EHP) said. "There are so many unknowns about this that we're creating a mass health experiment, and it's being conduct without the consent of the people who are most likely to be hurt by it."

Parents Worry About Flaring Natural Gas Well Near Summit Elementary School – Sept 7, 2013

Kate Maiongowski, staff writer for the Butler Eagle reports on concerns over a flaring natural gas well about 900 feet from a school playground in Butler, PA. EHP was contacted by concerned parents and residents in the area and issued the following one page advisory statement. Stating "From an air pollution model that we have developed, we know that under many conditions emissions from a well site would likely reach an area within 360 yards of it. This means that pollutants from the flaring site could have easily traveled to the school grounds. These pollutants could have been emitted at concentrations that are of concern."

Health Effects of Gas Drilling Under Study – August 25, 2013

Kevin Begos of the AP wrote this article, which first appeared in the Washington Post but because it was sent out "on the wire" by AP ended up getting carried in literally dozens and dozens of newspapers – some from as far away as New Zealand. Kevin incorrectly reported as a "study" our successfully completing a case series of health impacts plausibly related to gas drilling activities, including both water and air pollution, given either a temporal (time) and/or spatial (distance) relation to residents' and their health symptoms. In the case series, we found a plausible link between industry activities and negative health outcomes, primarily in adult populations. To grasp some of the negative spins/attacks put out by Industry Supporters in response to this story we would refer readers to our Disinformation Watch. Just two days later, in support of EHP's findings, a group of Health Experts in New York released the following "Statement on the Preliminary Findings from the Southwest PA Environmental Health Project" which was reported in the following article New York Group Weighs in on Pennsylvania Health Study.

PA House Democrats Seek More Drilling Safeguards – May 4, 2013

Robert Swift, Harrisburg Bureau Chief for The Times-Tribune reports on the PA State House Democrats hearing on expanding environmental and public health safeguards for gas drilling. EHP's Jill Kriesky testified that "The state needs to create a health registry of people who report plausible symptoms related to drilling…Such data is invaluable to public health researchers, toxicologists and

physicians who seek to identify specific symptoms associated with exposures to various stages of the gas extraction process."

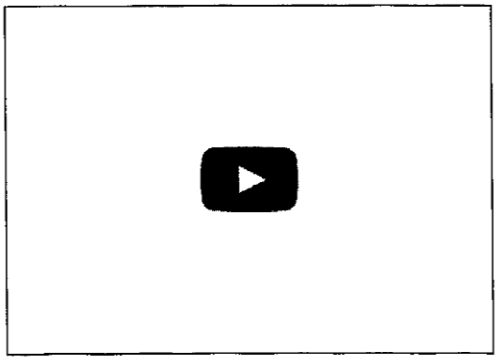
For a copy of EHP's Jill Kriesky's full statement please click here.

The Downwinders: Fracking Ourselves to Death in Pennsylvania – May 2, 2013

Ellen Cantarow's latest article has been cross-published in The Nation Magazine, TheHuffingtonPost.Com and TomDispatch.Com. Cantarow reports that "Pennsylvania farming communities are being turned into huge, open-air laboratories by energy companies...with ordinary people serving as its guinea pigs. And those people are paying a heavy price: mystery illnesses, dead animals, polluted water, land made worthless, and the loss of a way of life." EHP's Dave Brown is quoted at some length in the article with Cantarow concluding: "In the vacuum left by the state's failure to offer protection to those living in fracking zones, volunteers, experts like Brown, and fledgling organizations like the Southwest Pennsylvania Environmental Health Project have become the new protectors of citizens' health."

Environmentalists Raise Fracking Concerns – April 6, 2013

Brenda J. Linert, Business Editor of the Tribune Chronicle reports that EHP's Associate Director, Jill Kriesky was one of more than a dozen speakers and panelists in day-long conference held in Warren, Ohio and titled "Unconventional shale drilling. What we know, what we don't know, what we need to know to move forward." Topics included health, environment, economics and water safety. In her segment, Kriesky spoke about the equipment her agency helps provide to monitor things like air and water quality and the attention a nurse practitioner focuses on symptoms reported by residents like rashes, abdominal pain, stress and anxiety.



Organic Farmers Struggle to Protect Land from Encroaching Fracking – April 2, 2013

Eco Watch reports on a March 28, 2013 panel discussion in Pittsburgh, Pa., on farming and fracking in which EHP's Associate Director Jill Kriesky pointed out that without more research into the impact on food production and without greater transparency by the industry and the government it is difficult to track issues related to food consumption. She noted: "'There's no fence line here. You can't put a fence around

what's happening" in the communities affected by the shale gas rush."

Assessing the Health Risks of Fracking – March 9, 2013

The Southwest PA Environmental Health Project (EHP) was asked to share our public health experiences in SWPA with the New York State Health Commissioner Nirav Shah and his team as they review possible health impacts of fracking. Our response ran as an Op-Ed Commentary in the Albany Times Union under the By-Line of EHP's Public Health Toxicologist David R. Brown, D.Sc.

EHP's Dr. David Brown wins the Rev. Martin Luther King Jr. Vision Award – February 13, 2013

Fairfield University honored Dr. David Brown, a long-time Applied Ethics Adjunct Professor and an internationally recognized public health toxicologist with its prestigious Rev. Martin Luther King Jr. Faculty Vision Award. Citing "his pioneering efforts to integrate the sciences of toxicology, risk assessment, and environmental exposures to help protect vulnerable populations from serious environmental health problems" it was noted that he is a founding member of the **SWPA Environmental Health Project**. As stated in his nomination, "Dr. Brown's modest unassuming manner should not obscure the fact that this is a person in our midst who is guiding national policy on emerging environmental issues."

Pictured (left to right) are Vision Award honorees Wylie Smith and Sharon Pedrosa, Keynote Speaker Diane Nash, and Vision Award honoree Dr. David Brown.

MOB's Blog "An Urgent Call to Action from David Brown" – November 13, 2012

Marcellus Outreach Butler's (MOB) Blog on the The Third Annual Conference on the Health Effects of Shale Gas Extraction, held on November 9, which was hosted by the University of Pittsburgh Graduate School of Public Health included the following comments: "The session I found most informative was the last session of the day, which focused on guidance for persons with health concerns from water and air exposures during natural gas extraction. David Brown, a public health toxicologist..., spoke about the lack of a public health presence in the evaluation of exposure hazards and health concerns related to this gas extraction process. Not only do medical people not know what to do, they do not know what they don't know, according to Brown. He ... emphatically stated when you have uncertain results and significant exposure, you stop the exposure...."

Dave Brown's entire presentation at the November 9, 2012 Third Annual Conference on the Health Effects of Shale Gas Extraction is available online here.

Top 20 Health Concerns Related to Fracking – October 17, 2012

EcoWatch reports on a series of meetings between medical professionals, scientists – including SWPA EHP's Public Health Toxicologist Dr. David Brown – and senior staff from the New York Department of Environmental Conservation (DEC) and New York Department of Health as well as representatives from the Governor's office and the release of a summary report of those meetings which identifies 20 important public health concerns related to gas drilling.

"When there's a public health emergency, the primary objective is to stop the exposure," says Dr. David Brown, a public health toxicologist with the Southwest Pennsylvania Environmental Health Project which is helping sick people get medical care in areas of Pennsylvania with active fracking operations. "We try to help people whose water is contaminated and whose air is severely degraded. We tell them to test their water, stay inside, keep their windows closed, take their shoes off, that kind of thing. But really, at this point there are situations where there's not much we can do for them. There's no way for impacted individuals to stop the exposure."

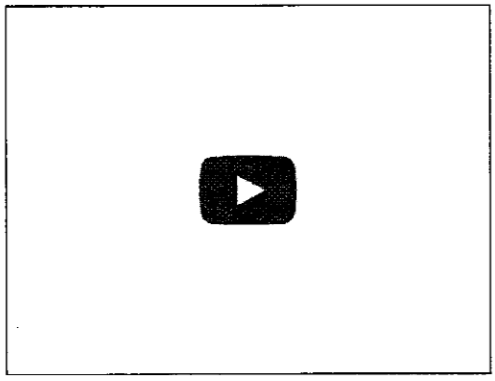
Heroic Endeavor: NRDC Community Fracking Defense Project – October 4, 2012

On Ecocentric, the official blog for the sustainable food, water and energy programs of the GRACE Communications Foundation, Kai Olson-Sawyer, Research and Policy Analyst reports on NRDC's launch of its Community Fracking Defense Project. He concluded his comments by specifically noting that "We can't forget to mention the great work of the Southwest Pennsylvania Environmental Health Project (SWPA-EHP)....Their website provides invaluable resources for those in dire and immediate trouble in the vicinity of active shale extraction and can serve as a model for the rest of the nation."

Public Health Impacts Stemming From Fracking – September 21, 2012

On September 21, 2012 SWPA-EHP Director, Raina Rippel, made an important presentation at a conference entitled "The Potential Health Effects of Hydraulic Fracturing" held at the College of Physicians of Philadelphia.

In this clip (below) Raina Rippel emphasizes the Public Health ramifications of natural gas drilling: "There are tangible impacts. There is empirical evidence.... There are health impacts, there are quality of life impacts, they are real, we are seeing them and we need to figure out how to address those."



Subsequent online coverage of this event has proven quite divergent. Consider these two examples: In a blog entitled "Days of Fracking Rage Sept 24, 2012" Raina Rippel's actual presentation was reported in the 7th and 8th paragraphs of the story pretty much *verbatim.*

While in an article by Taunya English of Newsworks WHYY entitled "In Philly symposium experts debate health effects of fracking.", emphasis was placed — beginning with the headline — on whether public health impacts even exist. One needs to drill down in the article and read the comments section from event attendees to learn that the bulk of the discussion was not on debating the existence of public health impacts but rather on exploring options for how to deal with the public health impacts. The panel's complete presentations can be found on YouTube.

Unconventional Gas Extraction Threats – Fall, 2012

In the Fall, 2012 Issue of the "New England College of Occupational and Environmental Medicine Reporter" SWPA-EHP's medical consultant Leslie Walleigh, MD, MPH warns that "Unconventional gas extraction, made possible by recently developed technologies, carries the risk of widespread air and water contamination with chemicals recognized as hazardous to human health."

Studies on Impact of Drilling Seek Funds – September 2, 2012

Kevin Begos of the Associate Press reports on a "much-publicized plan by two Pennsylvania health companies to study possible impacts from gas drilling" pointing out that "it is only in the preliminary stages as the groups continue to look for major funding" while noting that "the next big push" by SWPA-EHP which has "been examining similar questions" will be "on air quality." "Raina Rippel of the Southwest Pennsylvania Environmental Health Project says "We have plans in the works to look a personal monitors people could wear" to detect harmful levels of natural gas."

SWPA-EHP Releases Guidelines to Monitor, Test Private Wells – June 18, 2012

Amy Freidnenberger from the Pittsburgh Post-Gazette Pipeline reports that the SWPA-EHP has "released a set of guidelines for monitoring and testing private wells in the effort to address the concerns of Washington County residents who are worried about the safety of water from private wells near natural gas drilling locations".

"The report, "Well Water Contamination: SWPA-EHP Ranking System and Monitoring System" includes a monitoring and ranking system for residents to use in order to help them know what actions to take if they determine levels of contamination in well water."

Sick From Fracking? Doctors, Patients Seek Answers – May 15, 2012

In a week long special series "The Fracking Boom: Missing Answers", NPR explores the questions surrounding natural gas drilling and fracking. With more that 200,000 wells currently drilled, people living on the front door steps of the drilling have raised the question: Are these wells creating harmful pollutants? Rob Stein, Correspondent and Senior Editor on NPR's Science Desk explores why there isn't an answer yet by looking at a rural clinic in Burgettstown, PA which recently had to close its doors. The clinic had sought out the assistance of the SWPA-EHP, and David R. Brown and Raina Rippel are interviewed in the story.

Is Pennsylvania ignoring health issues on shale drilling? – May 13, 2012

This Associated Press article discusses the slow response time of PA Health Officials to community health complaints. Dave R. Brown makes the point that due to the lack of any additional funding budgeted to the Health Department to investigate and respond to this increased workload: "I am not surprised that their protocols are...difficult to get in place....I can tell you right now, you cannot do this on a shoestring."

Docs say Drilling Law Hurts Health – April 11, 2012

The Associated Press talks to public health leaders, including David R. Brown and John F. Suggs of the SWPA-EHP, about the new PA law requiring doctors to sign a confidentiality agreement in return for access to proprietary information on chemicals used in the hydraulic fracturing and how vital research money into the health impacts was stripped from the law at the last minute.

Marcellus: Health Impact "Searching For Common Ground" – March 29, 2012

This episode of WQED's "Pittsburgh 360", takes a look at the impact Marcellus Shale drilling is having on our region. Tonia Caruso finds out how one group (SWPA-EHP) is addressing the health concerns of drilling in Southwest Pennsylvania. The episode starts at 12:10 into the video.

"Is Fracking Making People Sick?" – March 23, 2012

Pennsylvania Public Radio program "The Allegheny Front" and Public Radio International "Living on Earth" report on the possible health effects of fracking and interview Raina Rippel, Project Director of SWPA-EHP amongst others.

Center Seeks To Shed Light On Fracking And Health – March 19, 2012

Jon Hurdle notes in his AOL Energy Blog that "In the continuing debate over whether fracking for natural gas contaminates drinking water, a new health center in the midst of Pennsylvania's drilling country may provide fresh clues."

Cuomo and Corbett Ignore Health Concerns from Gas Fracking – March 9, 2012

Peter Mantius Shale Writer for the DC Bureau cited the Center's work and quoted David Brown; "We're taking a public health approach to gas drilling," said David R. Brown, an SWPA-EHP organizer and former supervisor of superfund sites for the CDC. Brown has also served as chief of epidemiology for the Connecticut Department of Health. "We want to treat the people, not track the cause … to break the train of transmission. That's what you do in any outbreak."

Nonprofit to Work With the "Canaries" in the Shale Mine – Feb 24, 2012

The Nonprofit Quarterly's Louis Altman reports on the SWPA-EHP new services and quotes local pediatrician Dr. Helen Podgainy who says "she doesn't know "what we should be on the lookout for," but she doesn't want her young patients to serve as "the canaries in the coal mine," or, in this case, as canaries in the shale."

New Pennsylvania group leading the way in first-of-its-kind health care for oil and gas communities – Feb 21, 2012

Natural Resources Defense Council (NRDC)'s Senior Policy Analyst Amy Mall praised the organization in her blog saying "Their staff experts bring decades of eminent experience, extensive education, and priceless knowledge and environmental health expertise to this issue. I am glad there will now be a new resource to help families being harmed by natural gas activities in southwest Pennsylvania, and hope it is a model that can be replicated elsewhere."

First-ever shale health office opens: Nonprofit program to assess effects of rampant gas development – Feb 21, 2012

Don Hopey, who has been covering environment issues for the Pittsburgh Post-Gazette since 1992, writes about the Launch of the Health Center in McMurray, PA noting that it is the "first-of-its-kind medical program to assess both the individual and public health impacts of widespread Marcellus Shale gas development".

Shale Health Office Available for Southwest PA Residents – Feb 21, 2012

Sam Malone from FracTracker gave the organization a wonderful welcome noting that "Raina and her team are fantastic resources, enabling us to better understand localized concerns and impacts and providing an outlet through which we can share the information we gather during our data analyses."

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(325)

Appendix 2

Act 13 presumes an operator is responsible for pollution of an affected water supply within 2,500 feet of an unconventional well, if that pollution occurred within 12 months of production activity at the well site. EQT is proposing to drill within 3,500 of Jay Township's watershed. (Photo by Katie Weidenboerner)

= ELK County =

Jay Township looking for alternative water source

By Katie Weidenboerner

katiew@thecourierexpress.com

WEEDVILLE — Jay Township is desperately seeking an alternative water source as Marcellus Shale drilling has been proposed near its "exceptional value" rated watershed.

"It's like our contingency plan is falling apart," resident Jim Moyer said Tuesday during a steering committee meeting.

Rejection letters have been received from Fox, Highland and Jones townships as their municipal water systems do not have the capacity to provide the 400,000 gallons of water per day Jay and Huston townships' customers require. Jay Township Water Authority is under contract to supply Huston with treated water for the next 40 years.

No word was received from Ridgway and Johnsonburg boroughs or St. Marys in the last month.

While a letter from DuBois City said it has the "capability and capacity" to service both townships in the event of an emergency, members of the steering committee are wary of the proposal as they want a written guarantee and plan for how water would be supplied to the townships in the event of an emergency.

Approximately nine citizens of Jay Township, including Bob Coppolo (right), met Tuesday to wade through information and determine what the township would need in the event its watershed was contaminated by Marcellus Shale drilling which has been proposed near the watershed. (Photo by Katie Weidenboerner)

Also, committee members are fraught with concerns about the potential contamination of DuBois' water as a disposal injection well has been proposed near its reservoir and about two miles from Anderson Creek, the reservoir's headwaters.

Jay Township's rush to find an alternate water source comes on the heels of Marcellus Shale developer EQT Corp. proposing to drill near the Byrnes Run watershed, which is the main water source for the township. The township's

See Water, Page A7

over

LOOKING FOR A NEW RIDE?

DuBois Courier
JAN 22, 2015

facility. On the burglary, he ing to be in prison for a very Shugars said he drove the heroin valued at $60.

Water . . . Continued from Page A 1

backup water source also lies within the watershed.

The company had originally proposed drilling the "Ginger Pad" on the watershed property in February or March of 2015, which was met by vehement opposition by township residents as well as its supervisors. Despite moving the pad's location, drilling is slated to take place about 3,500 feet from the township's new groundwater well and intake.

Act 13 presumes that an operator is responsible for pollution of a water supply if the affected water supply is 2,500 feet from an unconventional well and that pollution occurred within 12 months of the later of completion, drilling, stimulation or alteration of the unconventional well.

"I have the feeling we're on the forefront of this (development of a contingency plan)," Jay Township resident Bob Coppolo said. "You have to protect the residents of this township - not only from the aspect of water quality, but from the aspect of economic impact... Who the hell is going to want to live in this community with this?"

EQT currently has one well pad in Jay Township on Gray Hill Road. In developing wells on this pad, the company has a total of 10 citations for failure to notify DEP and local entities within 24 hours of the commencement of drilling, multiple violations for improper casing and cement procedures and failure to plug a well upon abandonment, as well as failure to restore the well site with nine months after drilling is complete, according to DEP's Dept. of Oil & Gas online compliance report.

In an interview last week, EQT's Community Advisor Josie Schultz said the company exercised great care to design the well site to avoid the Byrnes Run watershed and to take precautions to prevent storm water drainage from flowing toward the municipal surface water intake.

"The location avoids the source water protection area as indicated by the Township and, according to a geologic structure map provided by the Township, the geologic gradient trends southeast, not southwest toward the protected watershed area, which provides additional security to the watershed," Schultz said.

At an October meeting, Nathaniel Manchin of EQT told township officials the company is "not in the business of creating contingency plans." Supervisors and township residents have since been meeting bi-monthly to draft an agreement to reconnect the township to water if its water is compromised by drilling activity.

"I told DEP they came to the township and said they aren't in the business of making contingency plans," said Anita Johnston, secretary for Jay Township Water Authority. "But they're in the business of contaminating our water possibly, so they should be in the business of providing a backup."

Supervisor Fran Gustafson said recently the company told the township it wanted to work with them on the contingency plan. EQT was not at the table Tuesday while residents continued to work to lay the groundwork of solutions to the "what ifs" that linger in the wake of the proposed drilling.

Department of Environmental Protection spokeswoman Lisa Kasianowitz Lisa said in an email to the Courier-Express, EQT's permit six permit applications for the six proposed wells on the well pad is still under review as the agency awaits EQT's response of questions posed by Jay and Huston townships. She added a timeframe for when the permit review will be complete has yet to be determined.

Until the contingency plan can be penned and passed, the township has taken the path of most resistance - calling DEP every day about the permit and sending EQT letters with questions which need answered.

"I've been told my letters have kept this permit on hold," Johnston said proudly.

In addition to the contingency plan, the township is working with representatives from the office of environmental law Attorney Bob Ging of Confluence to draft an ordinance to which would create a moratorium on drilling in, and potentially near, its watershed.

Drivers . . . Continued from Page A 2

chance that her son chooses not to

CE thecourierexpress.com EXPRE

Feb. 5, 2015

MORE INSIDE

Help for county veterans

County veterans are now able to eliminate large amounts of paperwork and speed the receipt of benefits by filing online through the county Veterans A2.

School bus hits tanker truck

A school bus rear-ended an empty tanker truck on a rural western Pennsylvania highway Wednesday, sending the drivers of both vehicles to hospitals. A7

Equipment blamed for fire

Officials say an equipment malfunction appears to have sparked a fire at a western Pennsylvania gas drilling site. No injuries were reported. A8

Penguins win over Oilers

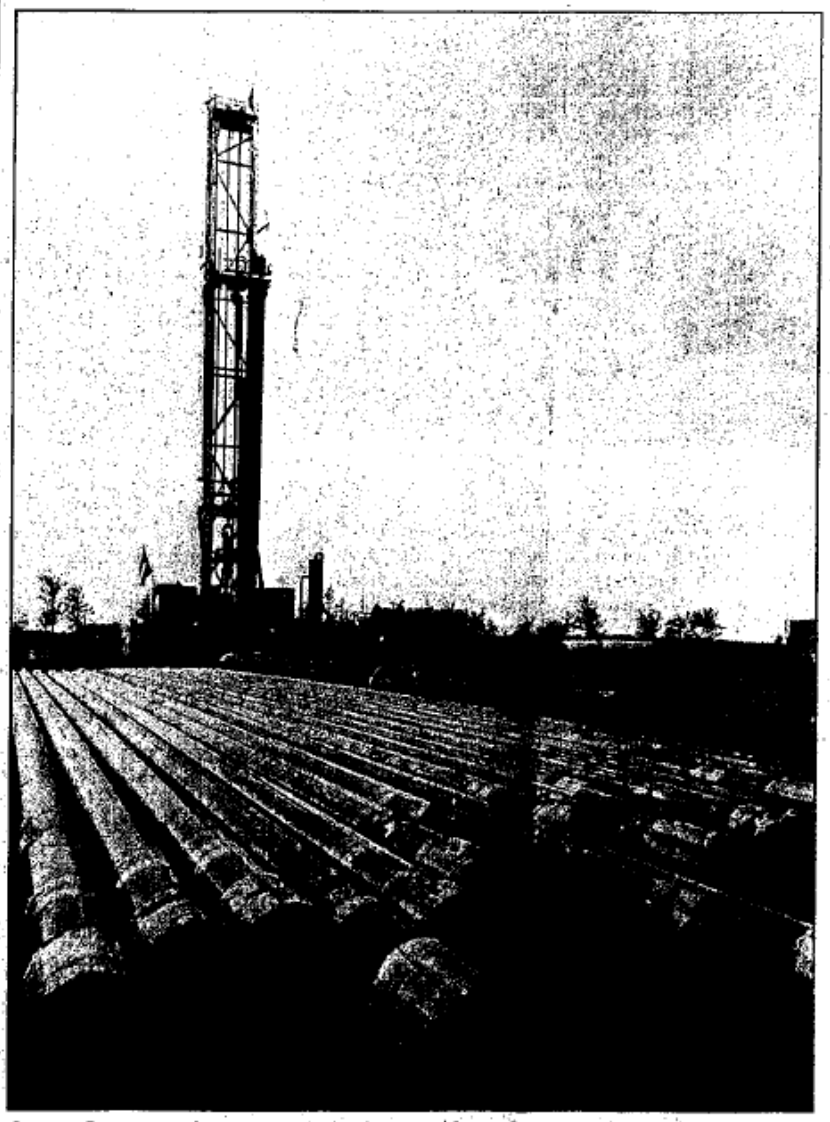
Though he wasn't sorely tested for most of the game, Marc-Andre Fleury stepped up when the Pittsburgh Penguins needed him most. B2

Obituaries

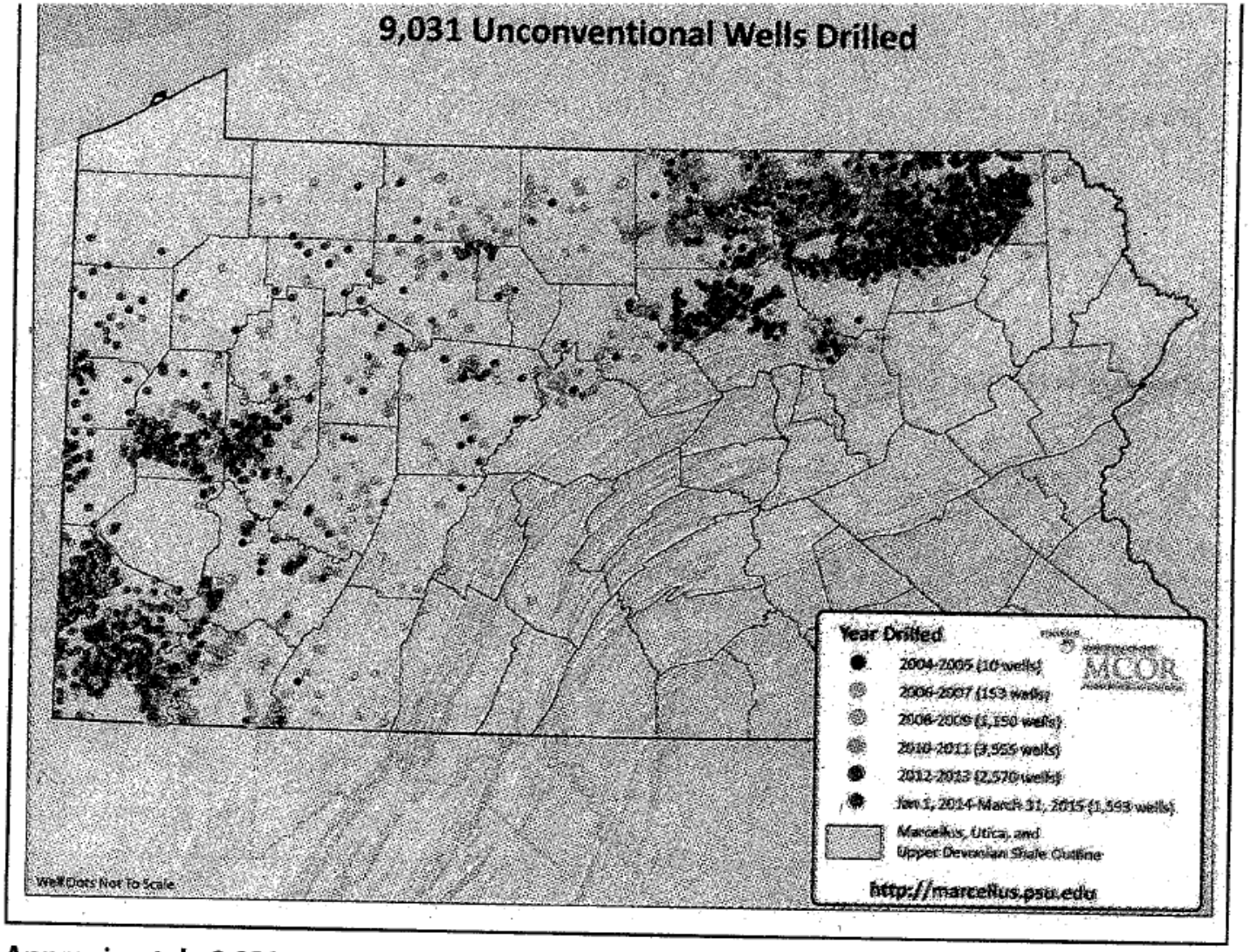
A7

- Stephen F. Carr, 63
- Malinda L. Chemsak, 66
- Nora Leshok, 94

Tomorrow's



Seneca Resources Corporation's production of natural gas and crude oil for the current quarter increased by approximately 29.8 percent compared to the prior year's first quarter, according to the fourth quarter earning report of its parent company, National Fuel. This increase is partially attributed to Seneca's "strong well results" on Clermont Pad D on Billy Buck Road in Jones Township, pictured, as well as other wells drilled in the Clermont-Rich Valley area in Elk County. Seneca Resources is continuing to take steps to ramp up into a full drilling plan in Elk County, where it owns 56 percent of the mineral rights countywide. Gas production in Elk County has been projected to increase eight-fold over the next three years, according to elected officials. (Photo by Katie Weidenboerner)



Approximately 9,031 unconventional wells have been drilled in Pennsylvania between 2004 and March 31, 2015. Currently, 100 wells have been drilled or are being developed in Elk County. Sixty percent of those belong to Seneca Resources. (Photo submitted)

(285)

that he

set of steps at the bottom of the hill

See Reynoldsville, Page A7

welcoming as DuBois. We're very fortunate to live in

begin Aug. 5. He said inter-

See DuBois, Page A7

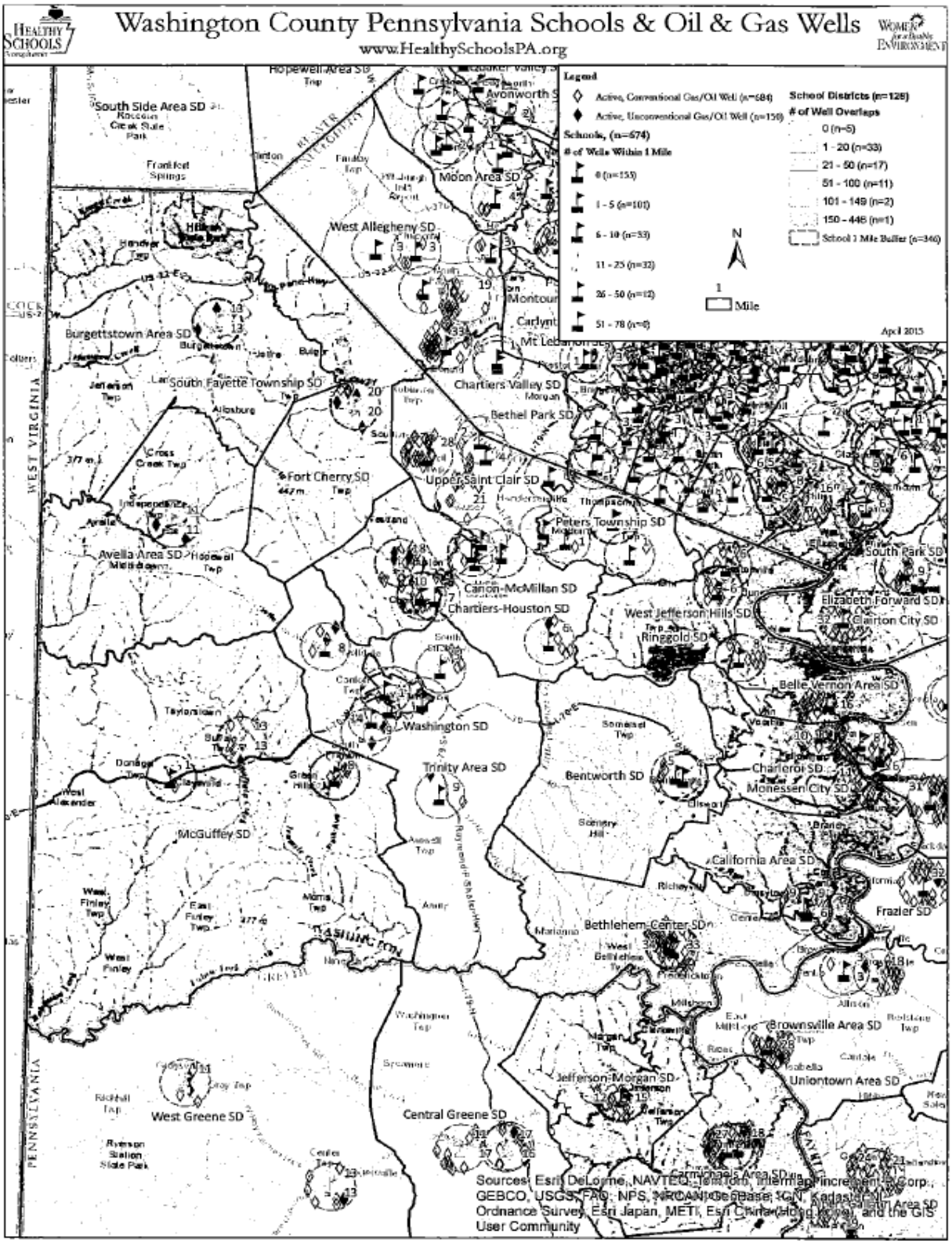
Brockway Fire Co. responded to a gas line fire at 7:23 a.m. Monday on Empire Ridge Road, Snyder Township. Brockway fire Chief Jeff Fustine reported that the fire was located in a remote area and there was no danger to any structures. Personnel from Seneca Resources responded to the scene and turned off the gas. The fire company was assisted by Brockway Ambulance. Emergency units were on scene for 1 1/2 hours. No property damage or injuries were reported. (Photo by Terry Fustine)

PENN HIGHLANDS DUBOIS has been

Penn Highlands DuBois
Primary Stroke Center

DuBois Courier
July 29, 2014

Appendix 3


Washington County Pennsylvania Schools & Oil & Gas Wells
www.HealthySchoolsPA.org
Legend
Active, Conventional Gas/Oil Well (n=684)
Active, Unconventional Gas/Oil Well (n=158)
Schools, (n=674)
# of Wells Within 1 Mile
0 (n=155)
1 - 5 (n=101)
6 - 10 (n=53)
11 - 25 (n=32)
26 - 50 (n=12)
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School Districts (n=128)
# of Well Overlaps
0 (n=5)
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School 1 Mile Buffer (n=340)
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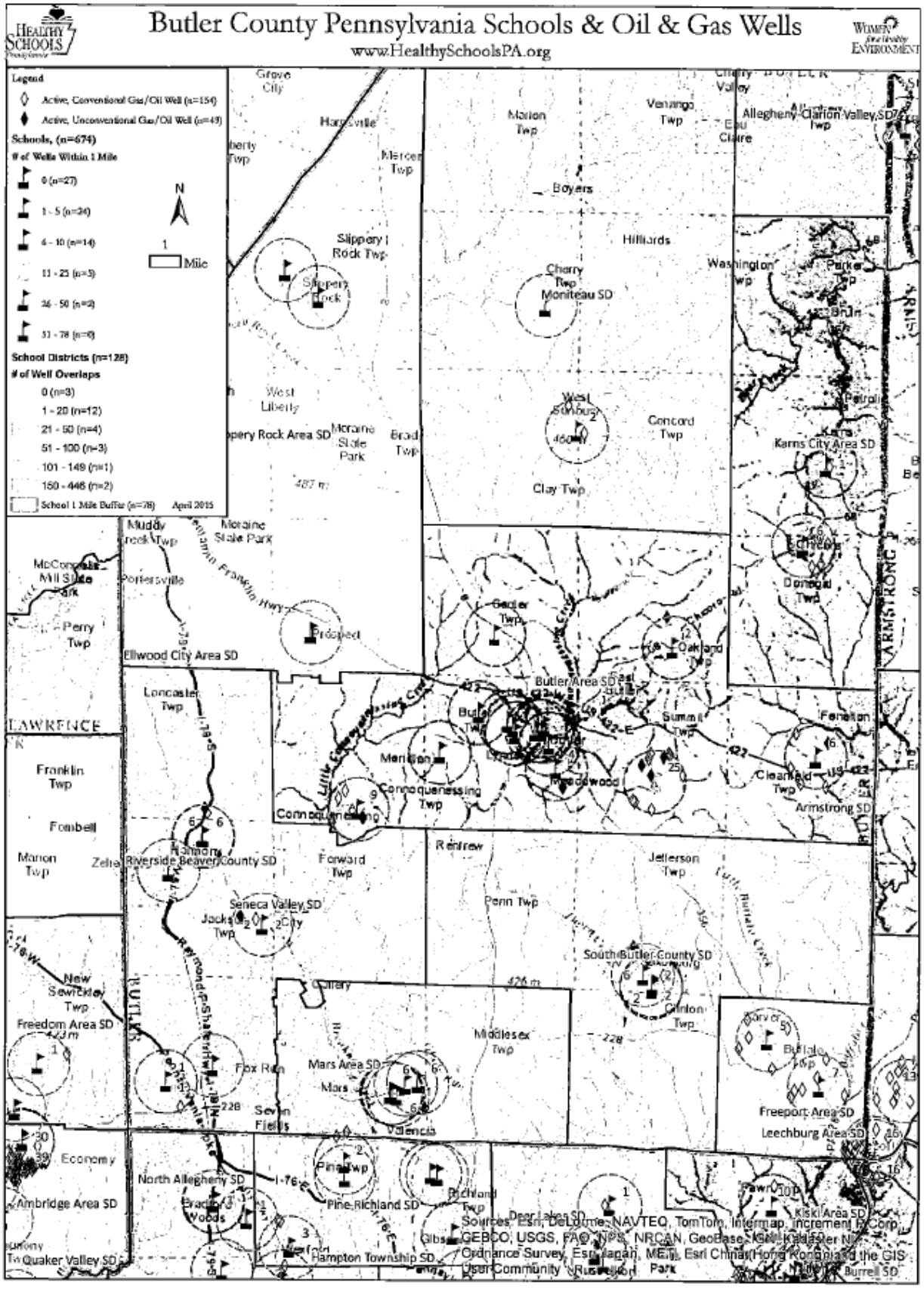
April 2015
South Side Area SD
Hopewell Area SD
Avonworth SD
Moon Area SD
West Allegheny SD
Burgettstown Area SD
South Fayette Township SD
Chartiers Valley SD
Bethel Park SD
Upper Saint Clair SD
Fort Cherry SD
Peters Township SD
Avella Area SD
Canon-McMillan SD
Chartiers-Houston SD
South Park SD
West Jefferson Hills SD
Elizabeth Forward SD
Clairton City SD
Ringgold SD
Belle Vernon Area SD
Washington SD
Trinity Area SD
Bentworth SD
Charleroi SD
Monessen City SD
McGuffey SD
California Area SD
Frazier SD
Bethlehem-Center SD
Brownsville Area SD
Uniontown Area SD
Jefferson-Morgan SD
Central Greene SD
West Greene SD
WEST VIRGINIA
PENNSYLVANIA
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community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Active, Unconventional Gas/Oil Well (n=49)
Schools, (n=674)
# of Wells Within 1 Mile
0 (n=27)
1 - 5 (n=34)
6 - 10 (n=14)
11 - 25 (n=3)
26 - 50 (n=2)
51 - 78 (n=0)
School Districts (n=128)
# of Well Overlaps
0 (n=3)
1 - 20 (n=12)
21 - 50 (n=4)
51 - 100 (n=3)
101 - 149 (n=1)
150 - 446 (n=2)
School 1 Mile Buffer (n=78)
April 2015
N
1
Mile
Grove City
Harrisville
Mercer Twp
Slippery Rock Twp
Slippery Rock
West Liberty
Slippery Rock Area SD
Moraine State Park
Brad Twp
Muddy Creek Twp
Moraine State Park
McConnells Mill State Park
Portersville
Perry Twp
Ellwood City Area SD
Proposed
Marion Twp
Venango Twp
Boyers
Hilliards
Cherry Twp
Moniteau SD
Washington Twp
Parker Twp
Bruin
Petrolia
Karns
Karns City Area SD
West Sunbury
Concord Twp
Clay Twp
Chicora
Donegal Twp
Gerter Twp
Oakland Twp
Butler Area SD
Butler Twp
Butler
Summit Twp
Fairview
Clearfield Twp
Armstrong SD
Mentcle
Connoquenessing Twp
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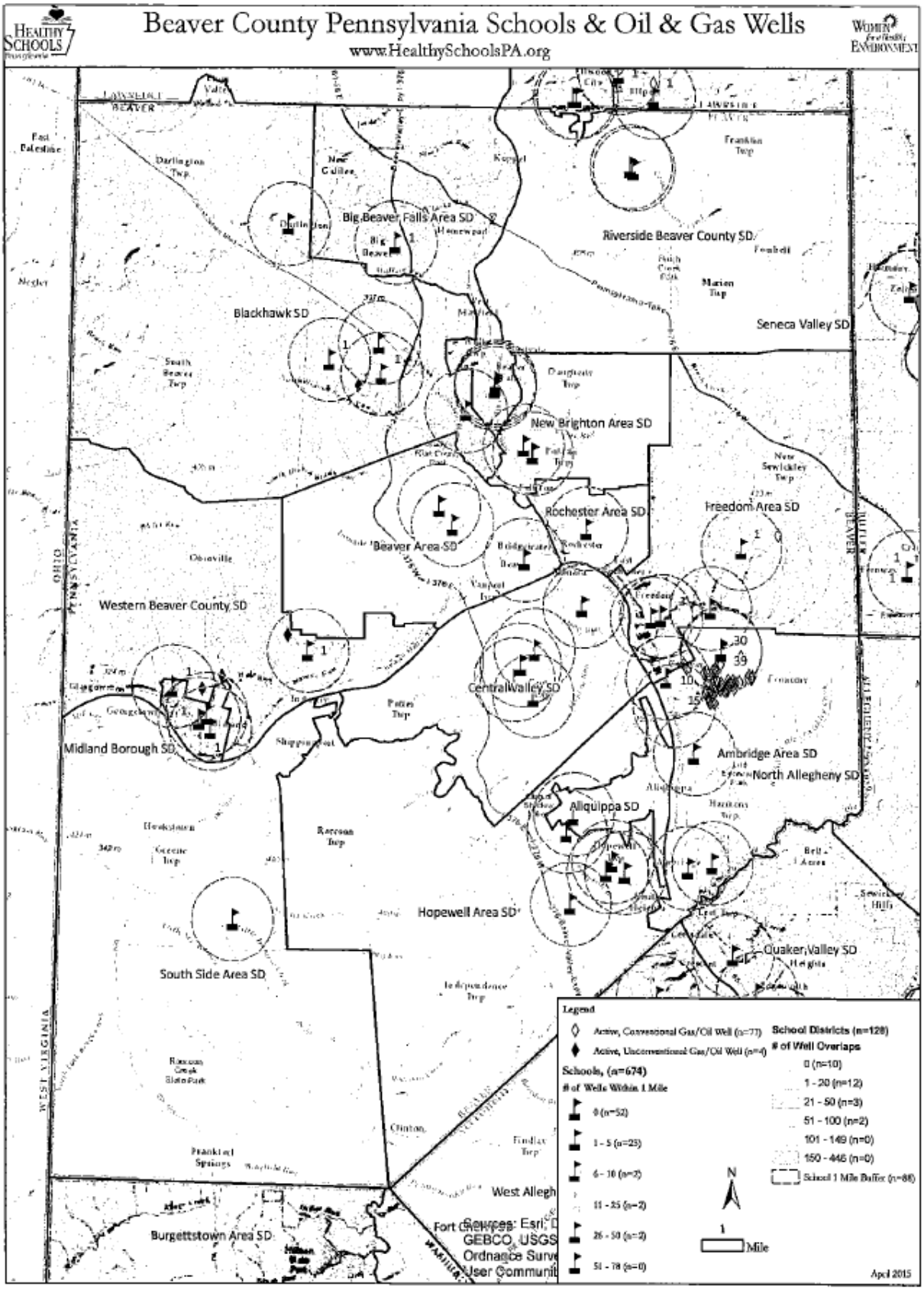
Meadowood
Loncaster Twp
LAWRENCE
Franklin Twp
Fombell
Marion Twp
Zelienople
Riverside Beaver County SD
Forward Twp
Renfrew
Jefferson Twp
Penn Twp
Seneca Valley SD
Jackson Twp
South Butler County SD
Clinton Twp
New Sewickley Twp
Freedom Area SD
Cranberry
Middlesex Twp
Fox Run
Mars Area SD
Mars
Seven Fields
Valencia
Butler Twp
Freeport Area SD
Leechburg Area SD
Economy
Ambridge Area SD
North Allegheny SD
Pine Twp
Pine-Richland SD
Richland Twp
Deer Lakes SD
Kiski Area SD
Quaker Valley SD
Hampton Township SD
Burrell SD
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community


Beaver County Pennsylvania Schools & Oil & Gas Wells
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Big Beaver Falls Area SD
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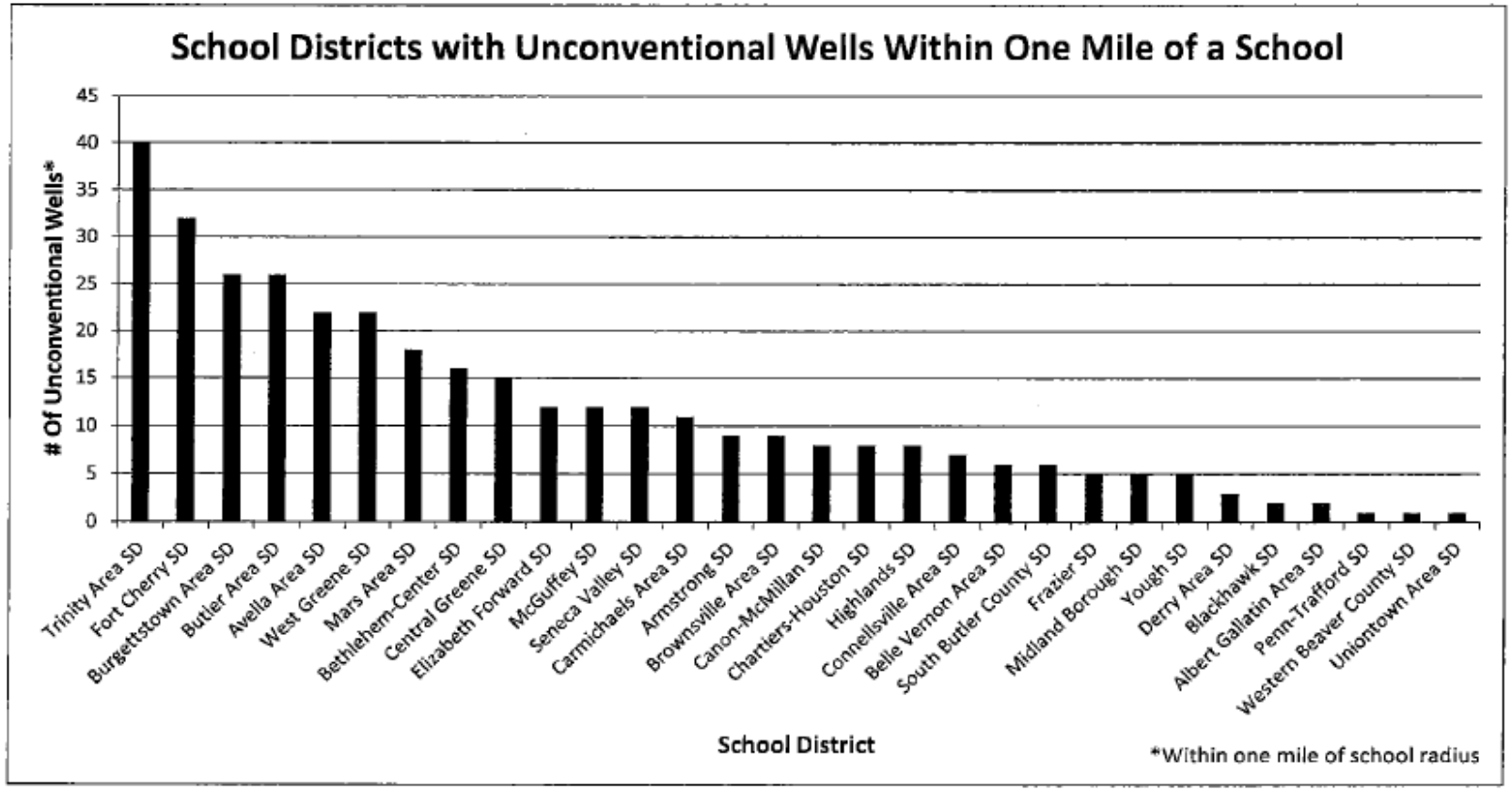
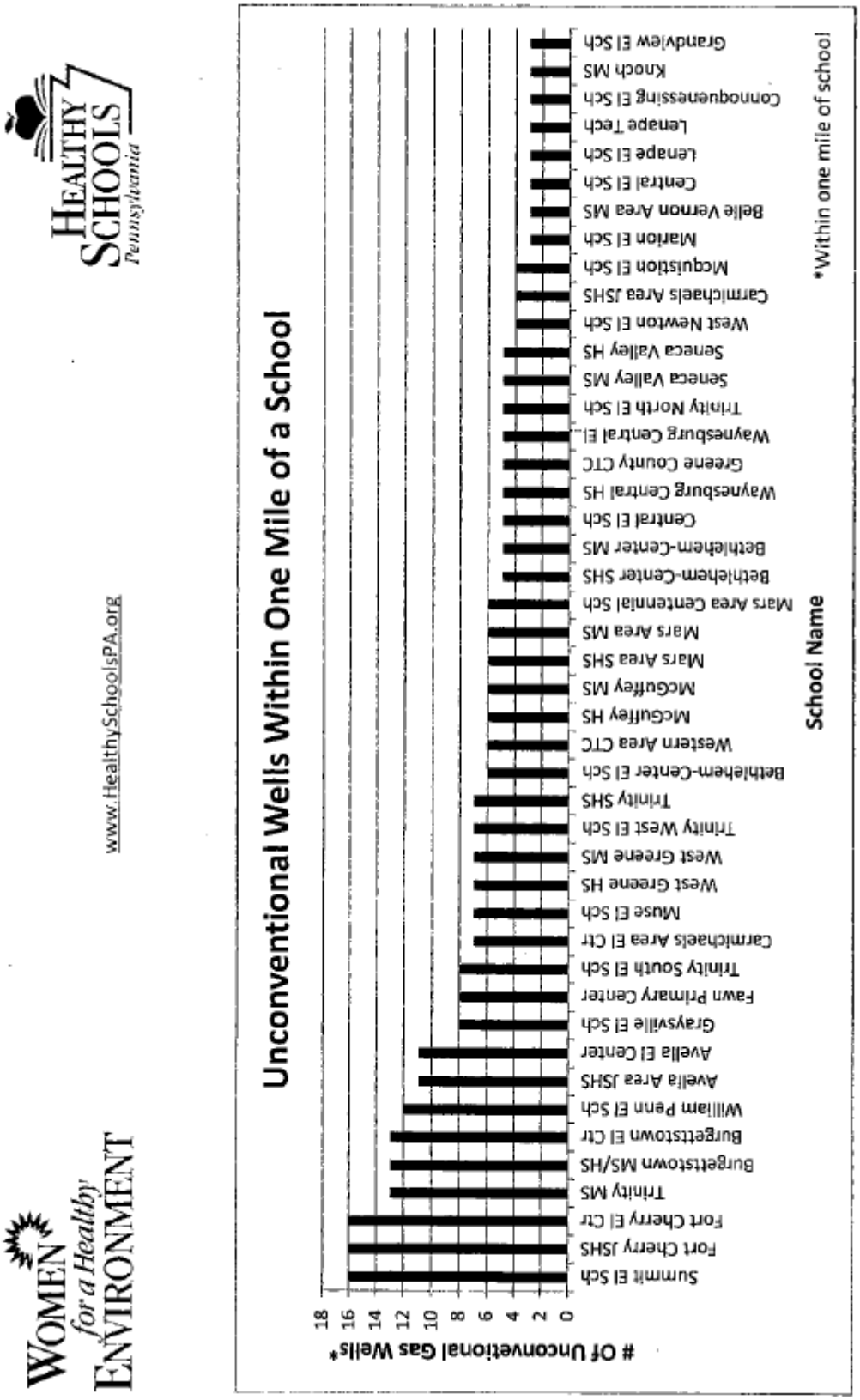
Blackhawk SD
Seneca Valley SD
New Brighton Area SD
Rochester Area SD
Freedom Area SD
Beaver Area SD
Western Beaver County SD
Central Valley SD
Midland Borough SD
Ambridge Area SD
North Allegheny SD
Aliquippa SD
Hopewell Area SD
Quaker Valley SD
South Side Area SD
Burgettstown Area SD
Legend
Active, Conventional Gas/Oil Well (n=77)
Active, Unconventional Gas/Oil Well (n=4)
Schools, (n=674)
# of Wells Within 1 Mile
0 (n=52)
1 - 5 (n=25)
6 - 10 (n=3)
11 - 25 (n=2)
26 - 50 (n=2)
51 - 78 (n=0)
School Districts (n=128)
# of Well Overlaps
0 (n=10)
1 - 20 (n=12)
21 - 50 (n=3)
51 - 100 (n=2)
101 - 149 (n=0)
150 - 446 (n=0)
School 1 Mile Buffer (n=88)
N
1
Mile
April 2015

WOMEN for a Healthy ENVIRONMENT

HEALTHY SCHOOLS Pennsylvania

www.HealthySchoolsPA.org





www.HealthySchoolsPA.org

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Appendix 4

Geosynthetic Institute
475 Kedron Avenue
Folsom, PA 19033-1208 USA
TEL (610) 522-8440
FAX (610) 522-8441

March 10, 2014

Environmental Quality Board
P. O. Box 8477
Harrisburg, PA 17105-8477

RE: Proposed Amendments to 25 Pa-Code, Chapter 78, Subchapter C

Dear All,

We represent 72 firms and agencies dealing with the proper development and use of geosynthetic materials including "synthetic flexible liners" which are called "geomembranes" by many other organizations. Among our 18 agency members is the Pennsylvania Department of Environmental Protection with Steve Socash as our contact person… see our website at www.geosynthetic-institute.org for details. This communication has two major points which we ask you to seriously consider as you go forward with your regulations.

1. The original Subchapter C – Environmental Protection Performance Standards has a 1×10^{-7} cm/sec maximum permeability for the synthetic flexible liner being used. This is a ridiculously high value and represents a typical clay or silt soil. Geomembranes have permeabilities down to 1×10^{-13} cm/sec and should be referenced and regulated as such. The agency is confusing everyone (including the public) by having such a high value representing the liner material for all types of containment pits.
2. *The proposed January 15, 2014 regulation banning the use of lined pits is completely inappropriate.* A properly lined geomembrane pit manufactured with polymers such as high density polyethylene (HDPE) will outlast steel storage tanks by decades.* Attesting to this established fact is that all landfills and surface impoundments for nonhazardous and hazardous solid and liquid wastes are lined accordingly. Their performance has been documented over time and with the use of double lined systems allows for the development of an "action leakage rate" for ultimate security of adjacent land and waters.** Your proposed banning of geomembrane lined pits for flowback and

*"Lifetime Prediction of Laboratory UV Exposed Geomembranes," by R. M. Koerner, G.R. Koerner, Y. G. Hsuan and W. K. Wong, GRI Report #42, January 3, 2013, 37 pgs.
** "Assessment and Recommendations for Improving the Performance of Waste Containment Systems," by R. Bonaparte, D. E. Daniel and R. M. Koerner, EPA/600/R-02/099, December 2002, 950 pgs.

production drilling waters flies in the face of the entire solid and liquid waste technology as practiced by the U.S. EPA and every state agency (including Pennsylvania) as well.

As a Pennsylvania resident my entire life and working with the PaDEP since its original founding, I ask you to re-consider your stance insofar as pit lining for flowback and production waters at drilling sites and operations. As you likely know the potential for contamination of these drilling fluids pales into insignificance in comparison to hazardous, and even nonhazardous, leachate from the solid and liquid waste industries.

Very truly yours,

Robert M. Koerner, Ph.D., P.E., NAE
Director Emeritus
Geosynthetic Institute

Attachment: resumé

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Geomembrane Installation Guidelines

Polyethylene Installation Guideline

This specification includes furnishing and installing HDPE and LLDPE geomembranes with a formulated sheet density of 0.940 g/cc or greater associated with HDPE geomembranes and a formulated sheet density of 0.939 or less for LLDPE geomembranes. Geomembranes with both smooth and textured surfaces are included. English Installation Guide

Esta especificación incluye el suministro e instalación de geomembranas de PEAD con una densidad formulada del plano de 0.940 g/cm o mayor. Esto incluye geomembranas tanto lisas como texturizadas. Especificacion para la Instalacion de Geomembranas

Guideline for Installation of Factory Fabricated Lightweight ≤ 0.64 mm (25 mil) Thickness Geomembranes

This guideline is an installation guideline for factory fabricated fabric-supported lightweight geomembranes (≤ 0.64mm or ≤ 25 mil in thickness as measured by ASTM D5199, D751 or D1777). This guideline is designed to provide a minimum set of standards for site installation. However, depending on the complexity and project specific requirements, a qualified design engineering firm may be required for design and installation specifications of the geomembrane. Factory Fabricated Lightweight Installation Guidelines

Guideline for Installation of Factory Fabricated Heavyweight > 0.64 mm (25 mil) Thickness Geomembranes

This guideline is an installation guideline for factory fabricated fabric-supported heavyweight geomembranes (> 0.64 mm or > 25 mil in thickness as measured by ASTM D5199, D751 or D1777.) This guideline is designed to provide a minimum set of standards for site installation. However, depending on the complexity and project specific requirements, a qualified design engineering firm may be required for design and installation specifications of the geomembrane. Factory Fabricated Heavyweight Installation Guidelines

Guideline for Installation of Factory Fabricated Compounded 0.25 to 1.52 mm (10 - 60 mil) Thickness Unsupported Geomembranes

This document is an installation guideline for factory fabricated compounded unsupported geomembranes of 0.25 to 1.52 mm (10 - 60 mil) thickness. The geomembranes covered in this guideline include the following polymers: Chlorosulfonated Polyethylene (CPSE); Polyvinyl Chloride (PVC) and alloys of PVC with other polymers; alloys with Ethylene Interpolymer Alloy (EIA); alloys with nitrile or other types of rubber; blends and alloys with other compatible polymers; Ethylene Propylene Diene Monomer (EPDM). This guideline is designed

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About CWT

IAGI's Certified Welding Technician (CWT) program recognizes the knowledge, experience and skill of those technicians who hold the certification.

Engineers benefit from IAGI's CWT program because certification verifies that the welders on their job have experience in geomembrane welding and meet industry standards of skill for those geomembranes they are certified in. IAGI encourages all engineers to require that any welding done on their jobsite be done with CWTs.

IAGI developed the Polyethylene, PVC, Reinforced and EPDM geomembrane welder's certification programs so installers could define standards of proficiency, recognize the knowledge, experience and skills of installers, and reward those who qualify with industry recognition.

Member companies who have invested resources in training and testing their welding technicians take pride in the skill of their welding technicians. IAGI encourages you to use companies that have made this commitment to quality on your next job!

Click here for a list of companies that employ CWTs.

Tenets of IAGI's Certified Welding Technician's Program (CWT):

- Raising the level of professionalism in the geomembrane industry
- Commitment to meeting high standards of field performance

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The International Association of Geosynthetics Installers

8357 N. Rampart Range Road, Unit 106
Roxborough, CO 80125 USA

iagi@iagi.org

Contact Us

2014 Elk River chemical spill

Coordinates: 38°22′7.98″N 81°36′23.82″W

From Wikipedia, the free encyclopedia

The **Elk River chemical spill** occurred on January 9, 2014 when crude 4-methylcyclohexanemethanol (MCHM) was released from a Freedom Industries facility into the Elk River, a tributary of the Kanawha River, in Charleston in the U.S. state of West Virginia.

The chemical spill occurred upstream from the principal West Virginia American Water intake and treatment and distribution center. Following the spill, up to 300,000 residents within nine counties in the Charleston, West Virginia metropolitan area were without access to potable water. The areas affected were portions of Boone, Clay, Jackson, Kanawha, Lincoln, Logan, Putnam, and Roane counties and the Culloden area of Cabell County.

Crude MCHM is a chemical foam used to wash coal and remove impurities that contribute to pollution during combustion. The "do-not-use" advisory for drinking water from West Virginia American Water's system began to be gradually lifted by West Virginia state officials on January 13 based upon "priority zones."

On Tuesday, January 14, the company revealed that the tank, which leaked about 7,500 gallons into the ground by the Elk River, had also contained a mixture of glycol ethers known as PPH, with a similar function as MCHM.

The chemical spill was the third chemical accident to occur in the Kanawha River Valley within the last five years. On June 12, 2014 another spill of containment water occurred at the same site.[1]

2014 Elk River chemical leak

[[File:2014_Elk_River_chemical_spill_affected_pong

png|250px|upright=1.1]]

Counties *(pictured)* in West Virginia affected by the 2014 Elk River chemical spill.

Date	January 9, 2014
Location	Freedom Industries (Charleston facility) 1015 Barlow Drive Charleston, West Virginia United States
Coordinates	38°22′7.98″N 81°36′23.82″W
Cause	Release of up to 7,500 US gallons (28,000 litres; 6,200 imperial gallons) of crude 4-methylcyclohexanemethanol into the Elk River
Participants	Freedom Industries West Virginia American Water
Outcome	Up to 300,000 residents within nine counties in the Charleston, West Virginia metropolitan area were without access to potable water
Injuries	169+ affected 14 hospitalized

Contents

- 1 Freedom Industries
- 2 4-Methylcyclohexanemethanol
- 3 Incident
  - 3.1 Local residents
- 4 Government response

- 5 Threat to human health
- 6 Environmental impact and cleanup
- 7 Resulting closures
  - 7.1 Litigation
- 8 Previous chemical accidents
- 9 Outcome
- 10 Further independent sampling
- 11 See also
- 12 References
- 13 External links

Freedom Industries

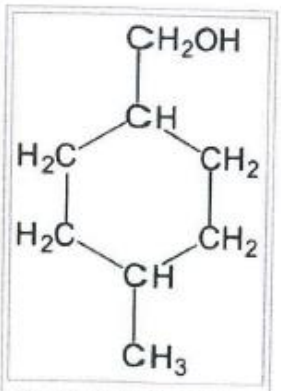
Freedom Industries was founded in 1992 by Gary Southern, and Carl L. Kennedy II.[2][3] On December 31, 2013, Freedom Industries merged with three other companies, Etowah River Terminal, Poca Blending, and Crete Technologies.[2][3] Southern remained as president of the newly formed company,[2] until the company filed for bankruptcy eight days after the spill.[4] The company distributed chemicals used in coal mining.[2]

Freedom Industries' Charleston facility was located along the Elk River, approximately 1.5 miles (2.4 km) upstream from the river's confluence with the Kanawha River,[5] Previously in use by Etowah River Terminal, the facility stored chemicals in 14 storage tanks with a capacity of 4 million gallons.[6] The facility stored chemicals, but did not conduct coal cleaning. Eastman Chemical Company was the manufacturer of the crude MCHM.[7][8] Federal and West Virginia state regulators had not inspected the Freedom Industries chemical storage site in Charleston since 1991 when the facility was owned by Pennzoil, according to the West Virginia Department of Environmental Protection (DEP).[9][10] Under state law, the facility had been required to have only an industrial storm water permit, which it possessed.[9] Freedom Industries was required to test the rain runoff every quarter, and send the results to the DEP.[9]

Under the federal Emergency Planning and Community Right-to-Know Act, Freedom Industries filed its "Tier Two" form in February 2013, which contained detailed information about each chemical it was storing at its Charleston facility.[11] Following its filing of the tier two form, West Virginia state emergency response officials and Kanawha County emergency planners and responders received copies.[11] These entities received copies of the form under law so that its chemical inventory information could be utilized to prepare plans for possible accidents.[11]

4-Methylcyclohexanemethanol

4-Methylcyclohexanemethanol (MCHM), or more appropriately 4-methylcyclohexylmethanol, is an organic compound with the formula $CH_3C_6H_{10}CH_2OH$. Classified as an alcohol, it exists as two isomers with similar properties. MCHM is a colorless oil with an[12] odor of licorice.[13]



Chemical structure of 4-methylcyclohexanemeth

The amount of reliable information of this chemical is still unknown. Further data from Eastman's internal studies was released after the Elk River, West Virginia (2014) spill, including the studies upon which the LD-50 estimate was based and one 28-day study of oral toxicity of pure MCHM which concluded that 400 mg/kg doses were associated with erythropoietic, liver, and kidney effects, though these were not considered more than "minor toxicity" and the "no observed effect" level was considered to be 100 mg/kg/day.[43]

Crude MCHM is a chemical foaming agent utilized in the processing of coal at coal preparation plants to remove impurities that contribute to pollution during combustion.[7][14][15][16] The chemical washes coal in a process known as "froth flotation," which involves the separation of sand-size particles of coal from the surrounding rock within a tank of water or other solution.[16] MCHM is utilized in about 20 to 25 percent of coal preparation plants in West Virginia.[16]

MCHM is not used in the majority of West Virginia's coal preparation plants, because it is only used to produce coal for metallurgical purposes, a type of coal known as "coking coal" and most West Virginia plants process coal that is to be used for the generation of electricity.[16]

Diesel fuel was originally used for the froth flotation process, but it was replaced by MCHM because of air emissions regulations.[16]

Glycol ethers are a group of solvents based on alkyl ethers of ethylene glycol commonly used in paints. These solvents typically have a higher boiling point, together with the favorable solvent properties of lower-molecular weight ethers and alcohols.[46]

Incident

The spill began on Thursday, January 9, 2014 when up to 7,500 US gallons (28,000 litres; 6,200 imperial gallons) of crude MCHM leaked from a one-inch hole in the bottom of a stainless steel storage tank capable of holding 40,000 US gallons (150,000 litres; 33,000 imperial gallons) and its containment area at Freedom Industries' Charleston facility.[14][15][17] The MCHM leaked from the containment area and into the ground, through which it traveled into the Elk River.[18] The chemical spill occurred 1 mile (1.6 km) upstream from West Virginia American Water's drinking water intake and treatment and distribution center.[14][17][18][19] The Elk River measured approximately 7 feet (2.1 m) in depth at the time of the spill.[8]

The spill was noticed around mid morning on January 9 by several Charleston area residents when they began to notice a "sweet smell"(like Licorice) in the air.[2][14][17][18] DEP began receiving odor complaints from Charleston residents at 8:15 a.m.[20] According to Freedom Industries, two employees noticed leakage from the tank into the containment area around 10:30 a.m. on January 9.[5][17] According to the company's president, Gary Southern, workers began cleanup immediately by hauling away the remaining MCHM in the storage tank and vacuuming the spilled MCHM from the ground nearby.[5][15][17]

Charleston's downtown skyline *(pictured)* viewed from the south bank of the Kanawha River, of which the Elk River is a tributary.

However, the DEP, whose inspectors discovered the leak at 11:10 a.m. in response to residents' complaints about the odor,[5] contradicted Southern's claim. When the department's inspectors arrived at the facility, they observed the MCHM leaking through a concrete block containment dike with no cleanup or containment measures underway.[5][21] Inspectors found a 4-foot (1.2 m) wide stream of chemical liquid flowing across the floor of the containment dike and into the ground where the dike's wall joined with its floor.[20] According to DEP inspectors, they discovered a pool of clear liquid measuring approximately 400 square feet (37 m^2) in size outside of the damaged white stainless steel tank, Number 396.[20] DEP inspectors also stated that Freedom Industries' workers had set up one cinder block and a 50 pounds (23 kg) bag of safety absorbent powder to stop the flow of the stream of leaking chemical.[20]

DEP air quality inspector Mike Kolb described the scene as "a Band-Aid approach" and stated further that it was "apparent that this was not an event that had just happened."[20] The DEP and the Kanawha County Fire Department had been able to locate the origin of the leak by tracing the smell.[17][18] At the time of the leak's discovery by the inspectors, the damaged storage tank contained about 30,000 US gallons (110,000 litres; 25,000 imperial gallons) of MCHM.[21]

West Virginia American Water was aware of the chemical spill by noon, but assumed that they could filter it. By 4 p.m., when its carbon filtration system could no longer handle the large amount of contamination in the water and the chemical began flowing through the carbon filter, they decided to report the problem. This they did at 5:09 p.m.[8][16] West Virginia American Water concluded that its tap water was unsafe for use and instructed its customers to cease using its tap water at 5:45 p.m.[14][17] Freedom Industries failed to contact West Virginia American Water following the spill, and West Virginia American Water was instead notified by the DEP.[8]

Freedom Industries refused initial media inquiries following the spill.[2] The company's president, Gary Southern gave a ten minute news conference the next evening, January 10.[2]

Local residents

(366)

Appendix 5

I N T R O D U C T I O N

Ever since the first discovery of "radium" in the late nineteenth century, radioactive materials have been used in various ways. We have seen several occasions when life has been acutely harmed by nuclear devices: Hiroshima, Nagasaki, outdoor nuclear bomb testings, Three Mile Island, Chernobyl, and now, Fukushima. Although we are already living with radiation present in nature (known as background radiation), many of us are most certainly living alongside man-made radiation, which is far more hostile to our life, let alone other living creatures. You might be surprised to find nuclear facilities nearby, in your country or region. Nuclear energy continuously produces dangerous radioactive materials that enters our everyday life through air and water, even without major accidents.

An old-school Geiger Counter (radiation monitoring device)

The Fukushima nuclear disaster that began in 2011 still continues to pose threat to the people and environment in the region, and even far outside the Japanese borders. What can we learn from Fukushima and people in Japan in order to together resist nuclear energy?

More portable, affordable yet efficient Geiger Counters became widely available after Fukushima Nuclear Disaster in 2011.

One thing all of us can fo is to learn about radiation. In this zine you can learn a few tips to avoid negative effects of radiation. We can learn together in order to break the culture of silence in nuclear industry, and to break the myths that we have been made to believe for a very long time. Reclaim science, protest and survive!
***all the information in this zine is copyright-free and you are encourage to share it with others.**

Robert Schmetzer

How does radiation effect your body? It depends on where you are, what you do and your age, sex, etc. There is a whole variety of radiation and understanding it is imperative.

Even if your body is not directly exposed to radiation, your body can develop illnesses by inhaling and ingesting radioactive materials. This is called internal exposure (as opposed to external exposure), which is often excluded from "risks" conceived by nuclear power industry as well as governmental regulator. However, because of low-level radiation the long-term health effects have cast shadows in many communities around the globe like towns near uranium mines and nuclear power plants, which routinely release radioactive materials into the air. The danger of radiation is inherent even without accidents like Fukushima and Chernobyl.

Usually, the average for radiation effects on human is modeled around healthy 20-year-old white male, weighing 70 kg. However, we do know that children and pregnant women are the most vulnerable to radiation.

There is no safe dose of radiation. There is no solution in keeping calm, or believing that 'there is no immediate effect.' Your body belongs to you! A little bit of science can help protect you and your loved ones (including your furry friends, of course).

WHAT DOES COEXISTING WITH RADIATION MEAN?

...TO STAY AWAY FROM IT!

Radiation isn't an obvious subject like cigarette smoke. It is odorless, flavorless and invisible. Although there are still politicians and scientists who say small amount is no harm (or even beneficial!) to your body, you need to learn to doubt what their motivations are. Those are the people who benefit from status-quo, and most of the time your health does not concern them, for the sake of keeping the profitable nuclear business going.

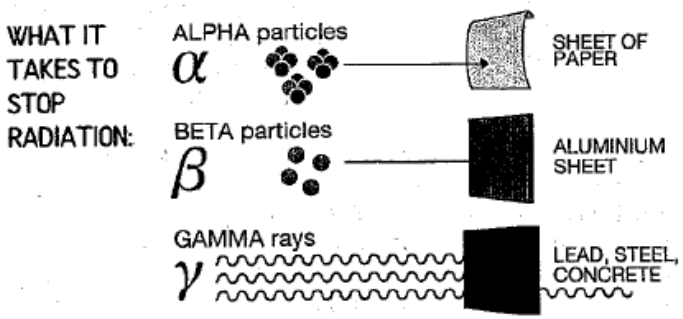
The basic idea of radiological science is that there is no such thing as a completely safe dose, and even "background" and medical radiation is harmful to you. There is a scientific consensus known as 2005 BEIR VII (Biological Effects of Ionizing Radiation) report from National Academy of Science which found that risk rises with exposure at any level above zero.

RADIATION IS EMITTED FROM RADIOACTIVE MATERIALS.

When an atom of radioactive material decays, there are three types of radiation that emit:

Alpha particles, Beta particles & Gamma rays (and X-Rays)

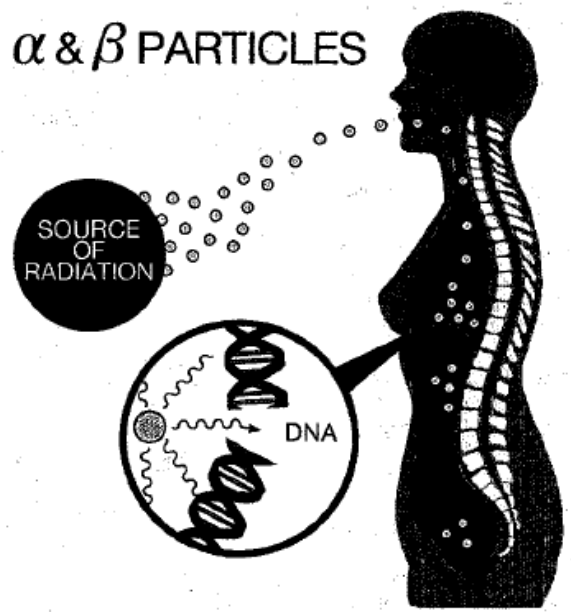
Most radioactive materials emit two or all three types of radiation.



HOW RADIATION ACTS IN YOUR BODY

α (alpha) particles, emitted from atoms such as uranium and plutonium, do not go through your skin but you can inhale and ingest them. If they get into your body, they can irradiate cells of various organs and cause illnesses like cancer.

β (beta) particles can do the same to your body as alpha particles.



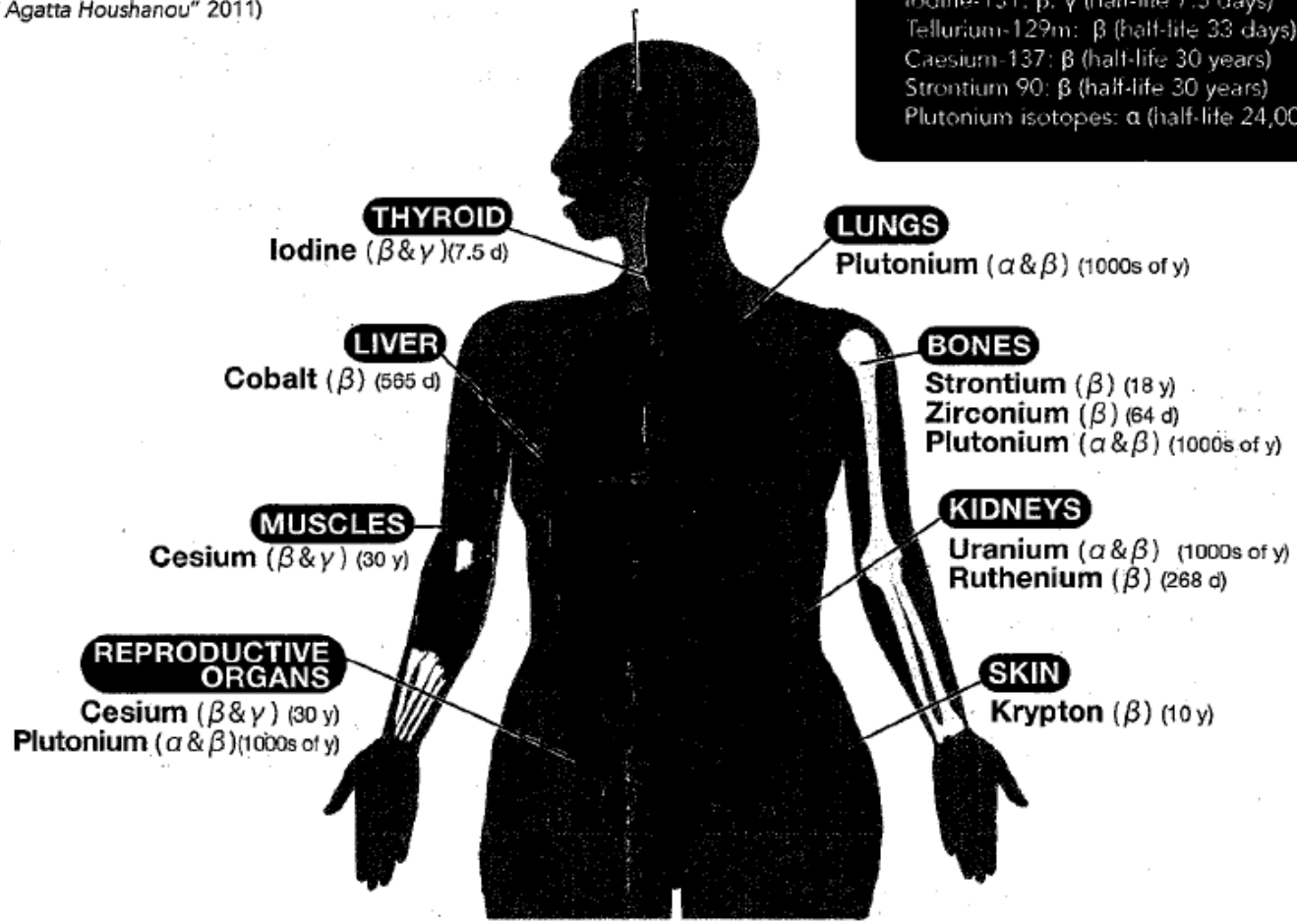
AGAIN, each dose you get exposed to is CUMULATIVE and even low levels of radiation can be harmful.

RADIATION IS CUMULATIVE IN YOUR BODY.

This diagram shows human organs and radioactive materials that are likely to accumulate in each organ. Each radioactive material also indicates its decay mode and the numbers showing biological half-life (reference to how toxic it stays).
(Diagram reference: Jinzaburo Takagi, Mikiko Watanabe, *"Shokutaku Ni Agatta Houshanou"* 2011)

RADIOACTIVE MATERIALS PRIMARILY RELEASED FROM FUKUSHIMA DAIICHI:

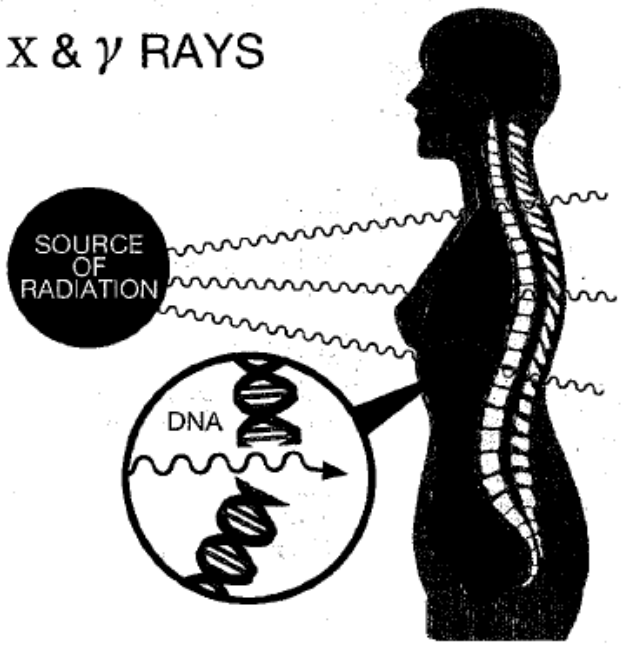
Iodine-131: β, γ (half-life 7.5 days)
Tellurium-129m: β (half-life 33 days)
Caesium-137: β (half-life 30 years)
Strontium 90: β (half-life 30 years)
Plutonium isotopes: α (half-life 24,000 years)



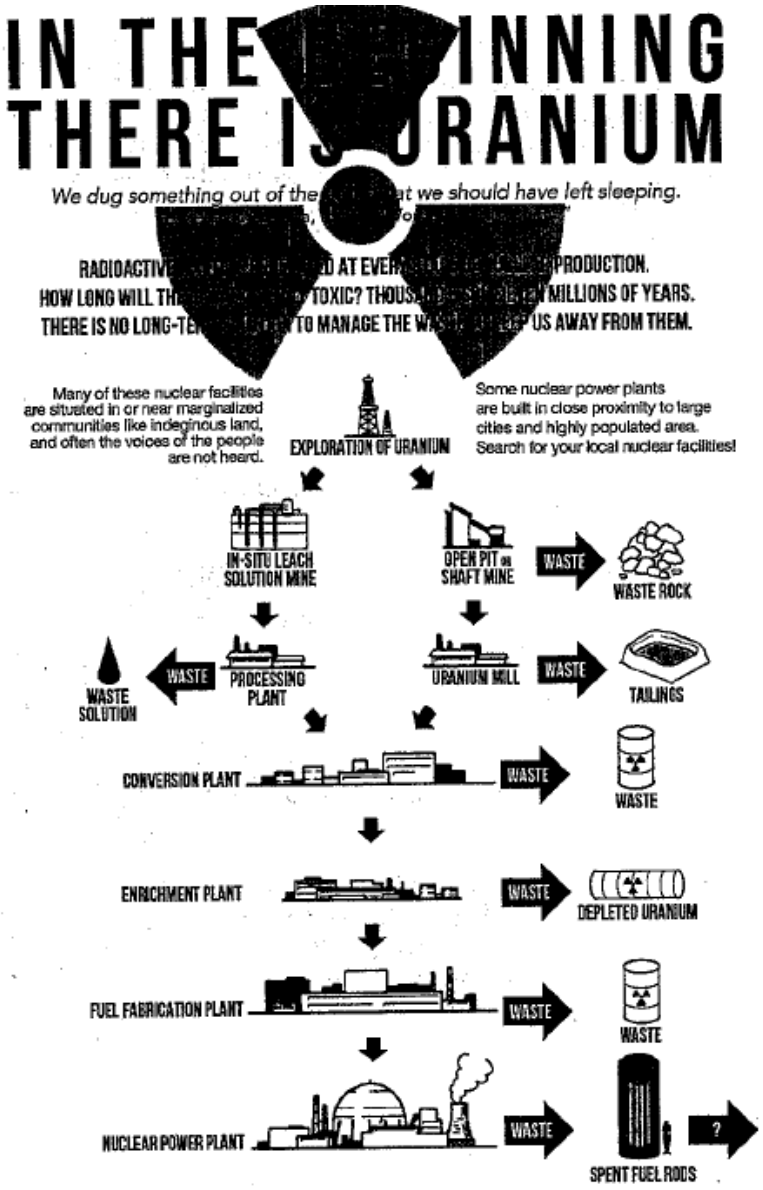
HOW RADIATION ACTS IN YOUR BODY

x-rays are what we are accustomed at medical facilities. You wear lead jackets to prevent your body parts to be penetrated with radiation apart from where you are being scanned.

γ-rays (gamma), very similar to but has more energy than x-rays, also goes through your body and could hurt your DNA.



Now, let's look at ways in which radiation is produced alongside our daily lives. Nuclear power plants aren't the only source of radiation... (next page)



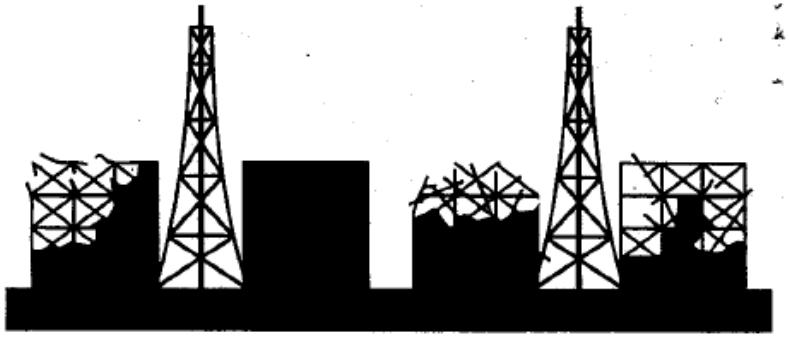
F U K U S H I M A

The meltdown and explosions at four reactors at Tokyo Electric's Fukushima Daiichi Nuclear Power Plant caused massive releases of radiation which still continues to this day.

People in Japan continue to live in radiation-contaminated areas. Why? Because their government does not provide any support for relocation to keep their country's nuclear energy program running. We have seen people facing complete denial and betrayal of the officials.

People question why their government does not help its own people. The protests continue in the streets, at workplaces, at universities - but in the meantime, radiation continues to spread into their everyday life, and unless they have proper knowledge about radiation, their lives are threatened.

From the crippled power plant in Fukushima in radiation is spreading all over Japan – through air, water and food distribution. So people are taking various counter measures on their own to avoid exposure to radiation.



F U K U S H I M A

Q: How are people in Japan living under radiation?

A: While many people are living with invisible battle with radiation, many have been monitoring radioactivity on their own to minimize exposure. Mainly food, water, soil and air. Also many have relocated to safe areas judging from readings the people themselves discovered. For instance, a group in Tokyo found cesium in mother's milk shortly after Fukushima.

School children in Fukushima have been provided with radiation dosimeter that don't alarm them for danger but merely collects cumulative data.

People monitoring radioactivity in a playgound.

Q: How do people monitor radiation and share the data?

A: A lot of monitoring began autonomously among parents who have small children. Geiger counters have become household items in eastern Japan (including the capital Tokyo) soon after the Fukushima meltdown. People monitored and tweeted the data from neighborhood parks, schoolyards, ther gardens. In some occasions they discovered hotspots (highly radioactive spots) in the areas where the officials did nothing otherwise.

Q: Why did people evacuate Fukushima without evacuation order?

A: Read this testimony from a mother who relocated to Sapporo City from Shirakawa, a city outside the evacuation zone:

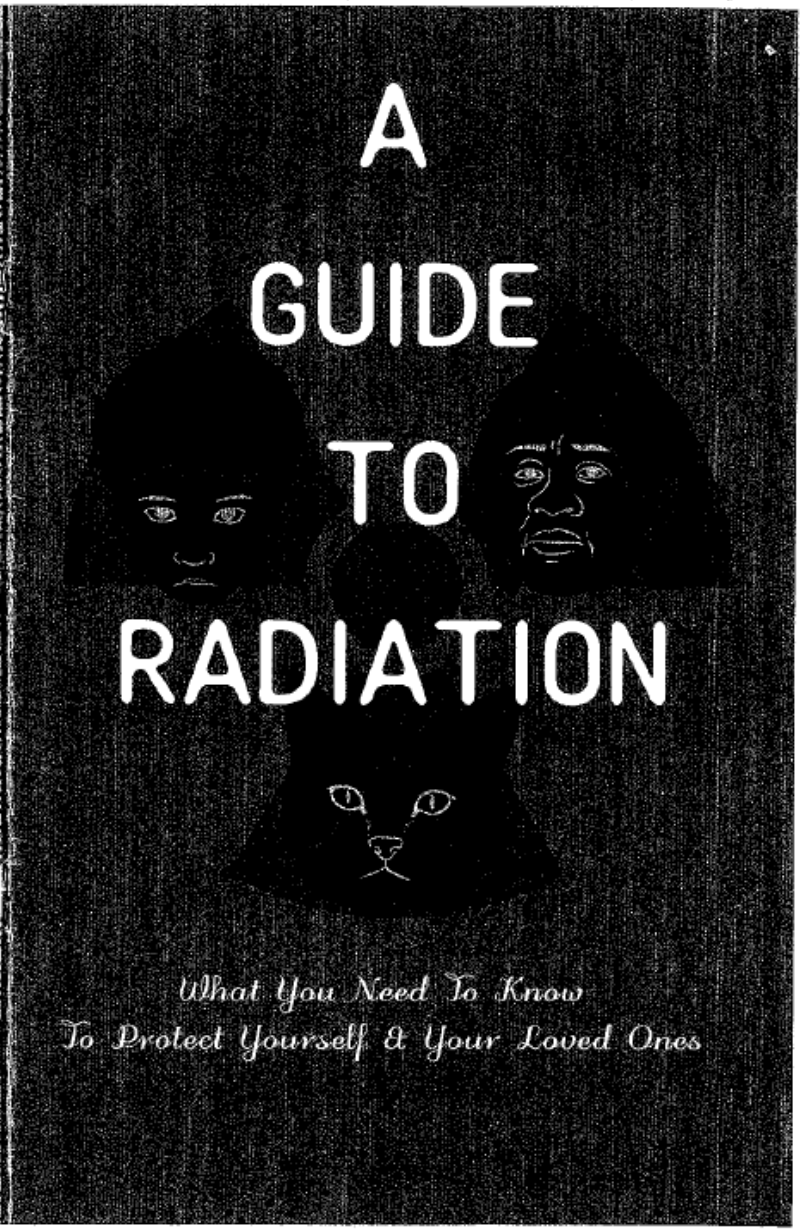
What made me decide to move out of Fukushima was my 12 year old son's anxious look, when, in May 2011, he had continuous heavy nose bleeding. He asked me, "Are we okay to stay here?" Since that moment, it no longer mattered to me whether the nosebleed really was due to radiation or not – but it was just wrong to live in a place where children felt unsafe. (...)

Why is it that very basic of human dignity is neglected? Why is it that concerns and demands to protect vulnerable children are ignored? Why is it that nobody has been punished for causing the accident which was clearly stated to have been a human error? (...)

We must not leave our children a future that is full of despair and disappointment. "I didn't know," "I couldn't see" - we can no longer accept these excuses.

Excerpts from magazine MAMA REVO (Mom's Revolution) Vol 5., 2013
Translation by Project to Save Kids and Future

national
'Invisible enemy' stalks Fukushima
Unknown risks
MILISIEVERT: MAXIMUM RADIATION DOSE YOU ARE ALLOWED TO BE EXPOSED TO (INTERNATIONAL STANDARD)
20 MILISIEVERT: A NEW STANDARED SET BY THE JAPANES GOV'T IN THE WAKE OF FUKUSHIMA IN ORDER TO AVOID MASS EVACUATION FROM BIG CITIES
250 MILISIEVERT: A NEW STANDARED JAPANESE GOVERNMENT SET FOR NUCLEAR WORKERS IN THE WAKE OF FUKUSHIMA, FROM PREVIOUS 100 MILLISIEVERT
tests erupt nationwide
GS TRAVEL


A GUIDE TO RADIATION
What You Need To Know
To Protect Yourself & Your Loved Ones

Robert Schmetzer
724 378 0731

Consideration of Radiation in Hazardous Waste Produced from Horizontal Hydrofracking

Report of E. Ivan White
Staff Scientist for the
National Council on Radiation Protection

Radioactivity in the environment, especially the presence of the known carcinogen radium, poses a potentially significant threat to human health. Therefore, any activity that has the potential to increase that exposure must be carefully analyzed prior to its commencement so that the risks can be fully understood. Horizontal hydrofracking for natural gas in the Marcellus Shale region of New York State has the potential to result in the production of large amounts of waste materials containing Radium-226 and Radium-228 in both solid and liquid mediums.

A complete and thorough analysis of the potential environmental pathways for exposure of people to these radioactive materials is a prerequisite to any regulatory approval of activities involving their extraction, handling, transportation and storage.

> The guiding principle for this work is that ***radioactivity should never be released into the environment in an uncontrolled manner*** because of the potential for exposure from the many potential pathways that exist.

Over the past fifty years, the Atomic Energy Commission (AEC) and the Nuclear Regulatory Commission (NRC) have spent millions of dollars on research that has resulted in computer models of the transport of radioactivity through the environment to humans. These environmental transport and human uptake models, known as "RESidual RADiation," or "RESRAD," are designed to be incorporated into governmental regulatory guidelines to ensure that people are not exposed to levels of radiation and radioactivity that would result in negative health impacts.

In April of 1999, the New York State Department of Environmental Conservation's Division of Solid and Hazardous Materials, assisted by representatives from sixteen oil and gas companies, conducted an internal investigation entitled *An Investigation of Naturally Occurring Radioactive Materials (NORM) in Oil and Gas Wells in New York State.* The report concluded that drill cuttings and wastewater from oil and gas drilling operations "do not constitute a health risk for the State's residents nor present a potential degradation of the State's environment."

A similarly cavalier attitude towards human exposure to radioactive material pervades the NYS DEC's 2011 Draft Revised Supplemental Generic Environmental Impact Statement (rSGEIS). The document's superficial characterization of radiation risks has prompted warnings from radiation experts, including those at the EPA whose public comments on the rSGEIS reflect deep concerns about the DEC's understanding and appreciation of the actual risks posed by radiation.

The National Council on Radiation Protection (NCRP) is a Congressionally-chartered agency charged with the authority and responsibilty to coordinate public information on radiation protection and radiation measurements. In its 2010 NCRP Report #169, *Design of Effective Radiological Effluent Monitoring and Environmental Surveillance Programs,* we describe the required radiation detection equipment and state-of-the-art modeling approaches for determining radionuclide transport pathways in the atmosphere, surface water, groundwater, and soil. Methods are presented for estimating potential radiation dose to the public and natural ecosystems resulting from releases of radionuclides into the environment.

Based on my experience in assessing potential transport pathways for radiation and a review of the DEC's internal report, I find two serious flaws that must be addressed and corrected prior to any final determination related to hydrofracking in New York State. The first is that the report examined a very different type of drilling than that which is being proposed. The second is that the authors used RESRAD in a limited way, resulting in faulty conclusions.

The 1999 DEC report examines vertically-drilled oil and gas wells in New York State that have been hydrofracked. This is very different from the ***horizontal*** hydrofracking currently being proposed for New York State. Vertical wells of the type measured by the NYSDEC are typically 1500-3000 feet deep with minimal penetration into the Marcellus shale formation. Horizontal slickwater hydrofracking wells, on the other hand, reach depths of 6,000 feet before turning horizontally for an additional mile or so. These deeper, longer wells have a much greater overall exposure to the Marcellus Shale formation and the radioactive materials contained within it, and thus an increased likelihood of bringing that radioactivity to the surface. (See Figure 1)

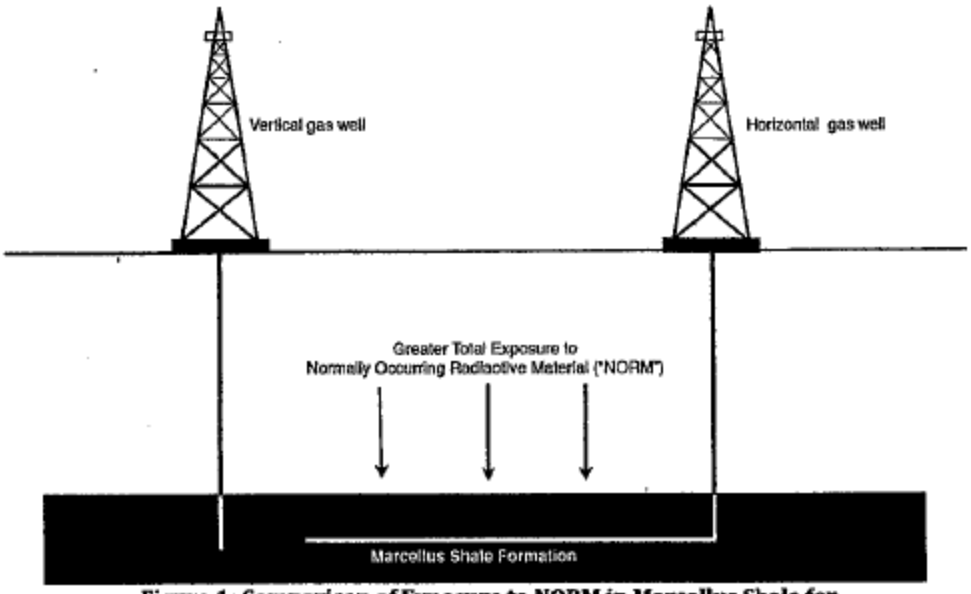


Figure 1: Comparison of Exposure to NORM in Marcellus Shale for Vertical Wells and Horizontal Wells

The second flaw is that RESRAD was not properly used to determine **all** of the potential pathways of the radiation. The following diagrams illustrate the potential pathways for radionuclides released into the environment in an uncontrolled manner, in air or in water.

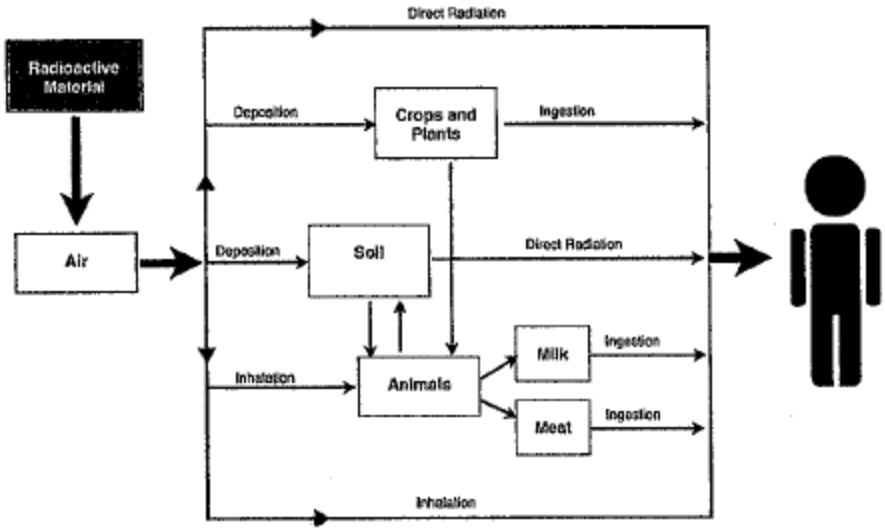


Figure 2: Pathways for Radiation Migration Through Air

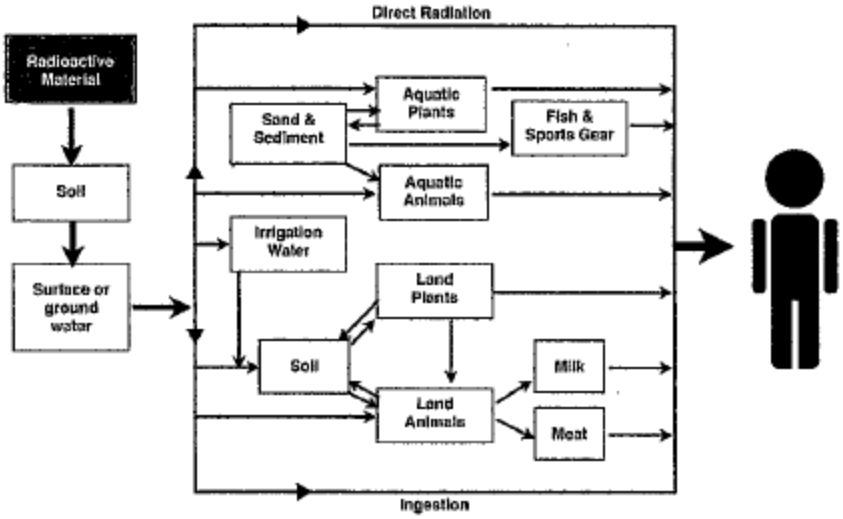


Figure 3: Pathways for Radiation Migration Through Soil and Water

For example, if radioactive wastewater from hydrofracking is spread on a road, there are two possible scenarios involving different pathways.

In one, the radioactive waste is spread on a paved road with a crown. Some of the waste will inevitably run off the road and find its way into a waterway or onto grazing fields or crops with the resulting pathways. The radioactivity in the waste remaining on the road will be resuspended by the traffic into the air with the resulting direct exposure to humans or biota.

In the second scenario, the waste spread on the dirt road is adsorbed by the dirt. When the dirt road dries out, the radioactive waste is resuspended in the dust from the road. The dust particle size and concentration is determined by the weight of a vehicle, the number of tires, and its speed. The dust is inhaled by humans and animals and deposited on the local vegetation, with the resulting pathways as illustrated above.

In both cases the cumulative impact of the radioactive waste will be determined by the amount of radiation contained in the waste, the number of vehicles and humans travelling on the road over years, proximity to residential or commercial areas, the amount of radiation migrating off road into streams or lakes or blowing onto agricultural land, and finally, the total potential dose to affected humans over time.

The radiation dose from a single truck travelling 40 miles per hour on a dirt road in rural New York State may appear to be insignificant, but the cumulative dose from 30 to 40 years of trucks could very easily be significant and needs to be rigorously calculated. Although there is considerable concern for the general population, exposed populations also include those most vulnerable; the old, the young and the ill.

Importantly, the type of radioactive material found in the Marcellus Shale and brought to the surface by horizontal hydrofracking is the type that is particularly long-lived, and could easily bio-accumulate over time and deliver a dangerous radiation dose to potentially millions of people long after the drilling is over.

Under the linear-no threshold hypothesis used in radiation protection, the goal is to limit the total radiation dose to large populations because of the increased probability of health effects. In the current case, the uncontrolled release of hazardous waste could result in the exposure of millions of people over decades.

Moreover, this scenario does not include any analysis of exposures to other hazardous chemicals used in the fracking process, which could have an unknown synergistic effect on the population.

SUMMARY CONCLUSIONS

1. Radioactive materials and chemical wastes do not just go away when they are released into the environment. They remain active and potentially lethal, and can show up years later in unexpected places. They bio-accumulate in the food chain, eventually reaching humans. Under the proposal for horizontal hydrofracking in New York State, there are insufficient precautions for monitoring potential pathways or to even know what is being released into the environment.

2. The NYS DEC has not proposed sufficient regulations for tracking radioactive waste from horizontal hydrofracking. By way of comparison, the nuclear industry has to rigorously account for all releases of radioactivity. No radioactive material leaves a nuclear facility without being carefully tracked to its safe final destination. Neither New York State nor the Nuclear Regulatory Commission would permit a nuclear power plant to handle radioactive material in this manner. (It is important to note that tracking of radioactive materials cannot be accomplished retrospectively; accurate accounting *must* be incorporated from the very beginning to ensure public safety.)

3. RESRAD was made precisely for situations like this, but it must be used properly to produce valid conclusions. Picking and choosing isolated scenarios and ignoring downstream exposures, as was done in the Report, is not a proper use of RESRAD and renders the conclusions invalid. All of the potential pathways over a span of decades as the hazardous material accumulates and the public's body burden build up must be considered to produce a valid RESRAD conclusion. This applies to both radioactive and chemical waste.

4. While this statement deals only with the radioactivity of waste produced by horizontal hydrofracking, the same principles of exposure pathways must be taken into account for all of the toxic chemicals used in the process. The EPA Pavillion Report demonstrates that there are hazardous chemicals in fracking fluid, and a recent review of the EPA report confirmed that it was valid.

E. Ivan White
October, 2012

This report was edited for public release by Grassroots Environmental Education, a non-profit organization.

US 20110000669A1

(19) **United States**

(12) **Patent Application Publication**

Barlow et al.

(10) **Pub. No.: US 2011/0000669 A1**

(43) **Pub. Date: Jan. 6, 2011**

(54) **PERFORATING GUN ASSEMBLY AND METHOD FOR CONTROLLING WELLBORE PRESSURE REGIMES DURING PERFORATING**

(75) Inventors: **Darren Ross Barlow**, Houston, TX (US); **Cam Van Le**, Missouri City, TX (US); **James Marshall Barker**, Mansfield, TX (US)

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(73) Assignee: **HALLIBURTON ENERGY SERVICES, INC.**, Carrollton, TX (US)

(21) Appl. No.: **12/512,530**

(22) Filed: **Jul. 30, 2009**

Related U.S. Application Data

(60) Provisional application No. 61/222,106, filed on Jul. 1, 2009.

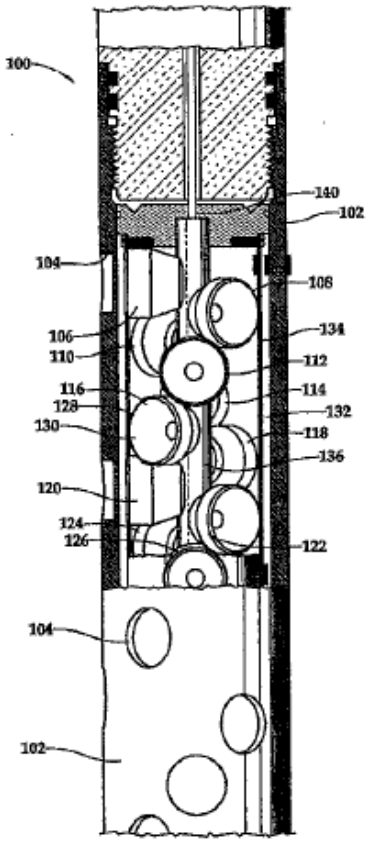
Publication Classification

(51) **Int. Cl.**
E21B 43/11 (2006.01)
E21B 29/02 (2006.01)

(52) **U.S. Cl.** **166/297**; 166/55.1; 166/63

(57) **ABSTRACT**

A perforating gun assembly for use in a wellbore. The perforating gun assembly includes a carrier gun body and a charge holder disposed within the carrier gun body. A plurality of shaped charges are supported within the carrier gun body. A secondary pressure generator is operably associated with at least one of the shaped charges. The secondary pressure generator optimizes the wellbore pressure regime immediately after detonation of the shaped charges by controlling the dynamic underbalance created by the empty gun chambers to prevent excessive dynamic underbalance which may detrimentally effect the perforating operation.



Robert Schmetzer

Published: February 26, 2011

Toxic Contamination From Natural Gas Wells

The New York Times collected data from more than 200 natural gas wells in Pennsylvania. Many of them are tapping into the Marcellus Shale, a vast underground rock formation. But a method being used to stimulate wells, called hydraulic fracturing, produces wastewater containing corrosive salts and radioactive and carcinogenic materials. In Pennsylvania, this wastewater has been sent through sewage treatment plants that cannot remove some of the contaminants before the water is discharged into rivers and streams that provide drinking water. The Times was able to map 149 of the wells.

Radium

Uranium

Gross Alpha

Benzene

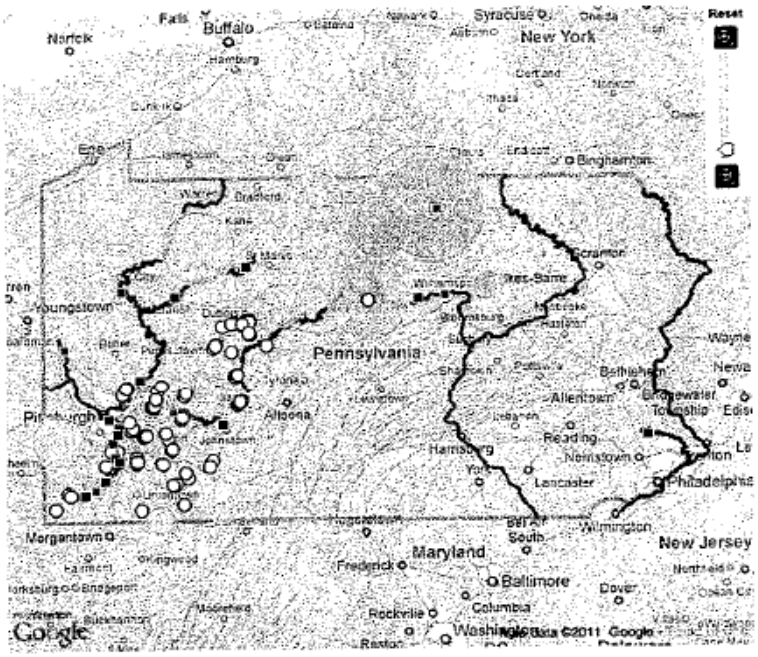
42 wells exceeded the federal drinking water standard for radium.

AMOUNT OVER THE FEDERAL LIMIT FOR RADIUM

1500 times

250 times

20 times



Reset

How much toxic contamination was found in wastewater from each well

Colored circles on the map are scaled to show the amount of each contaminant found in wastewater from each well. The key to the left shows the amount over the federal limit.

- Under the limit or no data
- Public sewage treatment plant that accepted gas industry wastewater within the past four years
- Drinking water intake plant that drew in water downstream from wastewater discharge
- Water quality monitoring station that began testing for radioactivity in rivers in November 2010

JEREMY WHITE, HAEYOUN PARK AND IAN URBINA | Send Feedback

Toxics Targeting; Environmental Protection Agency; state regulators; drilling companies

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Regulation Lax as Gas Wells' Tainted Water Hits Rivers

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Robert Schmetzer

Oil Yield and Uranium Content of Black Shales

By VERNON E. SWANSON

URANIUM IN CARBONACEOUS ROCKS

GEOLOGICAL SURVEY PROFESSIONAL PAPER 356-A

This report concerns work done on behalf of the U.S. Atomic Energy Commission and is published with the permission of the Commission

Robert Schmetzer
724 378 0731

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1960

Google: Uranium Content of Black Shales

Robert Schmetzer 724 378 0731

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Suite #341
New York, NY 10025
Cell phone (347) 556-5663

New York, September 12, 2012

REMARKS ON THE DAMAGE RELEASE AGREEMENT SUBMITTED TO ME ON SEPTEMBER 13, 2012

1. **This type of Agreement could permit a large fraud orchestrated by shadow characters**

(a) RANGE RESOURCES APPALACHIA, LLC

Is a kind of partnerships where the releasors signing this release agreement could be the innocent victims of a large fraud.

(b) RANGE RESOURCES APPALACHIAN LLC does not have an address …only a P.O. Box…

(c) The Releasor do not know the President, the Vice President, the Treasurer, the Chief Executor Officer of this LLC

(d) The Releasor have not seen the Articles of Organization of the LLC and the original receipt of the Department of State

showing payment of the filing fee on the day of the organization of the Limited Liabiity Company.

(e) The Board of Directors and officers are unknown.

(f) Initial Capital Contributions are unknown and we do not know if there is an Obligation to Restore Deficit Balance if any?.

(g) Compliance with Insurance obligation is unknown.

(h) What is going to happen in case of death of member interest, dissolution, Bankruptcy or incompetency of the management driving the operation of the company to a disaster?

(i) Behind this LLC with a PO Box as only address, it could exist a scheme run entirely by shadow characters committing felony of grand larceny in connection with an alleged improvements of the surface of the land , drilling activity, dust, noise, increase traffic, imposed by the LLC RANGE RESOURCES on the innocent victims, land owners and home owners in the areas.

(j) This DAMAGE RELEASE AGREEMENT does not provide enough evidence that the company LLC can fulfill its engagements contains in the AGREEMENT .

(k) Furthermore it is incredible that the possible damages resulting from drilling activity, dust, noise, increased traffic and road construction of well sites could be evaluated at only $1,500.00

(l) It looks that the company has no idea of the extension of damages on the properties of the innocent victim in the area,

Breaking News ALERT Breaking News ALERT**Breaking News ALERT****

Fracking Linked to Birth Defects in Landmark Study

A recent, peer-reviewed study has linked birth defects to the presence of fracking within a 10-mile radius of the mother's home.

This important study, conducted by researchers at the Colorado School of Public Health and Brown University, found "an association between the density and proximity of natural gas wells within a 10 mile radius of maternal residence and prevalence of congenital heart defects" as well as possible links to defects of the brain and spinal cord.

With the explosive growth of fracking and the drilling of new oil and gas wells across the United States, including in large population areas, we are placing our infants and children at risk of devastating birth defects and other harms.

Read the enclosed letter and take action by joining Food & Water Watch's national campaign to ban fracking. Thank you.

(286)

Appendix 6

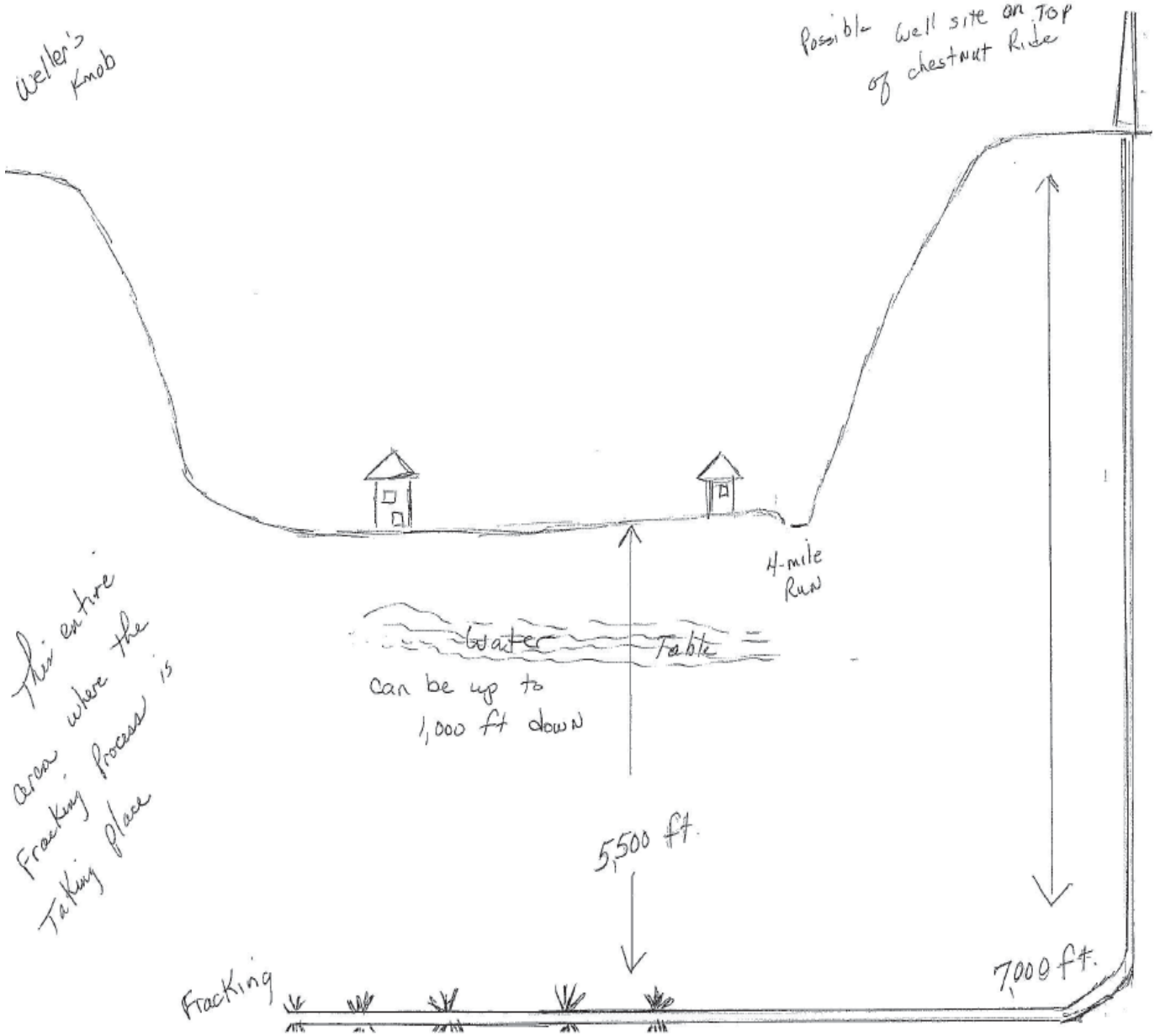
One of **unnamed tributaries** on the Chestnut Ridge behind our neighbor's cottage that flows into the 4-Mile Run

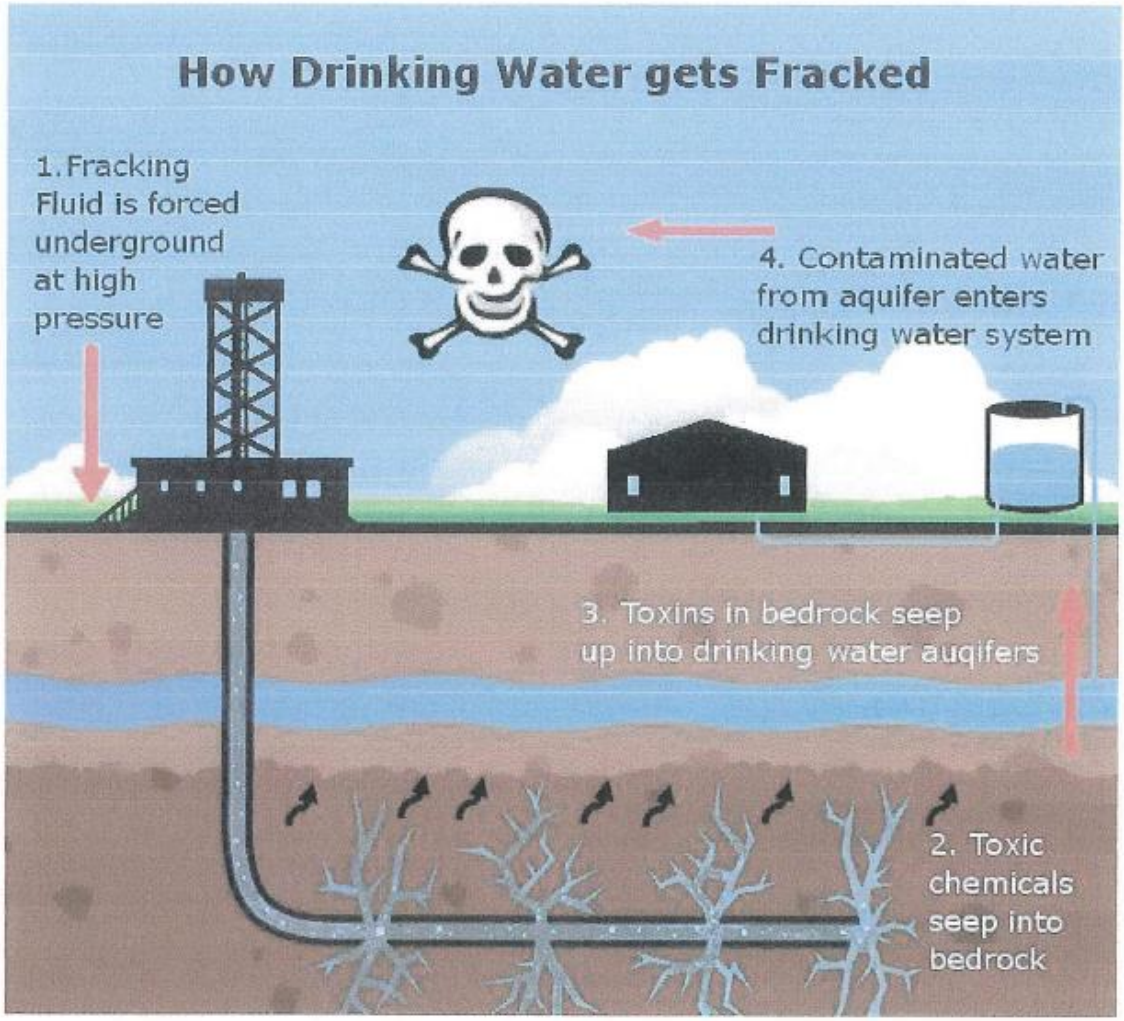
Activities on the 4-Mile Run

Caught, photographed in a pink bucket, & then released

Their very survival depends on your decisions.

The clear, clean waters of the 4-Mile Run


Weller's Knob
Possible well site on Top of chestnut Ridge
4-mile Run
Water Table
can be up to 1,000 ft down
this entire area where the Fracking process is Taking place
5,500 ft.
7,000 ft.
Fracking



The buffer zone should include not only the area around the well head **itself**, but **needs to include the entire distance of the actual fracking process**, as **the horizontal direction does go out far beyond the present protected distance at the well head**. There are chemicals injected into the ground at tremendous pounds of pressure per square inch **that fractures the shale and rocks**, plus the ground itself already contains natural toxic substances. **(refer to the Pittsburgh Post-Gazette article)**

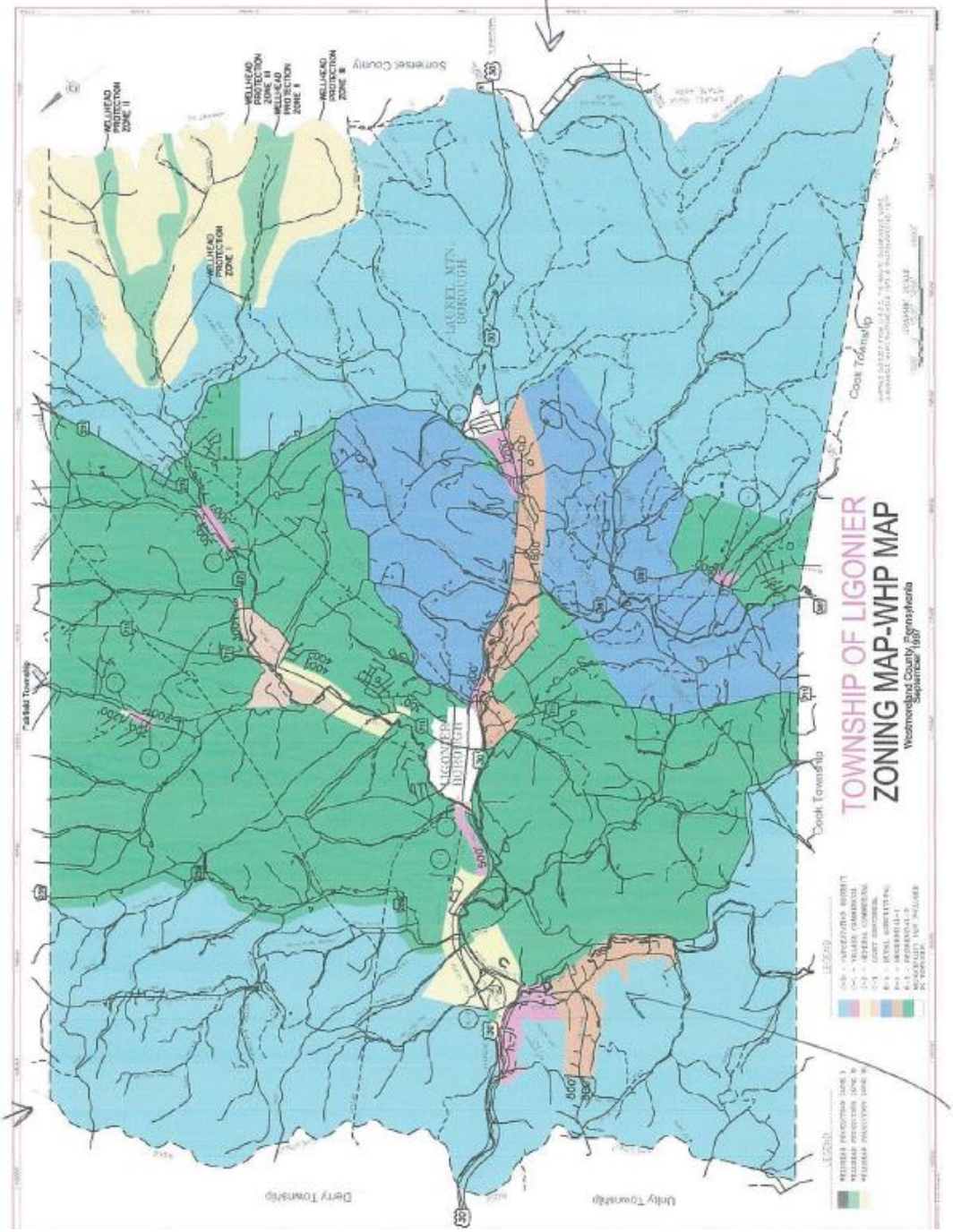
The long term effect, of 5 - 10 - 15 years from now, can be devastating and irreversible.

http://www.theyucatantimes.com/wp-content/uploads/2014/06/Frackingphoto2.greenandcl... 1/12/2015

Found Township website Forms + ordinances Bottom Left

Laurel Mountain

Prior Coning Map



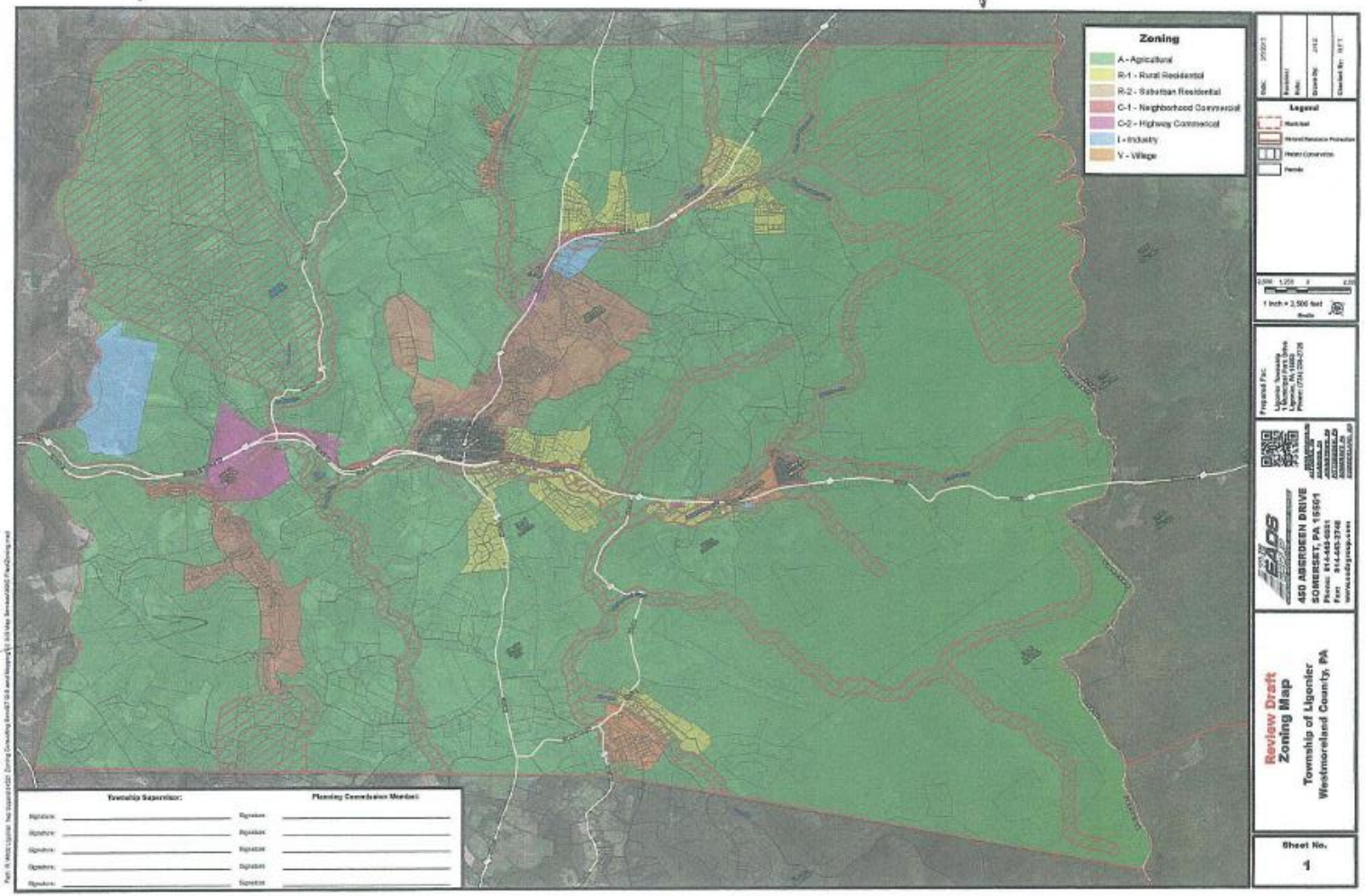
Chestnut Ridge

Our Valley

Chestnut Ridge

Found on township web site
Home Page Bottom left

Laurel mountain



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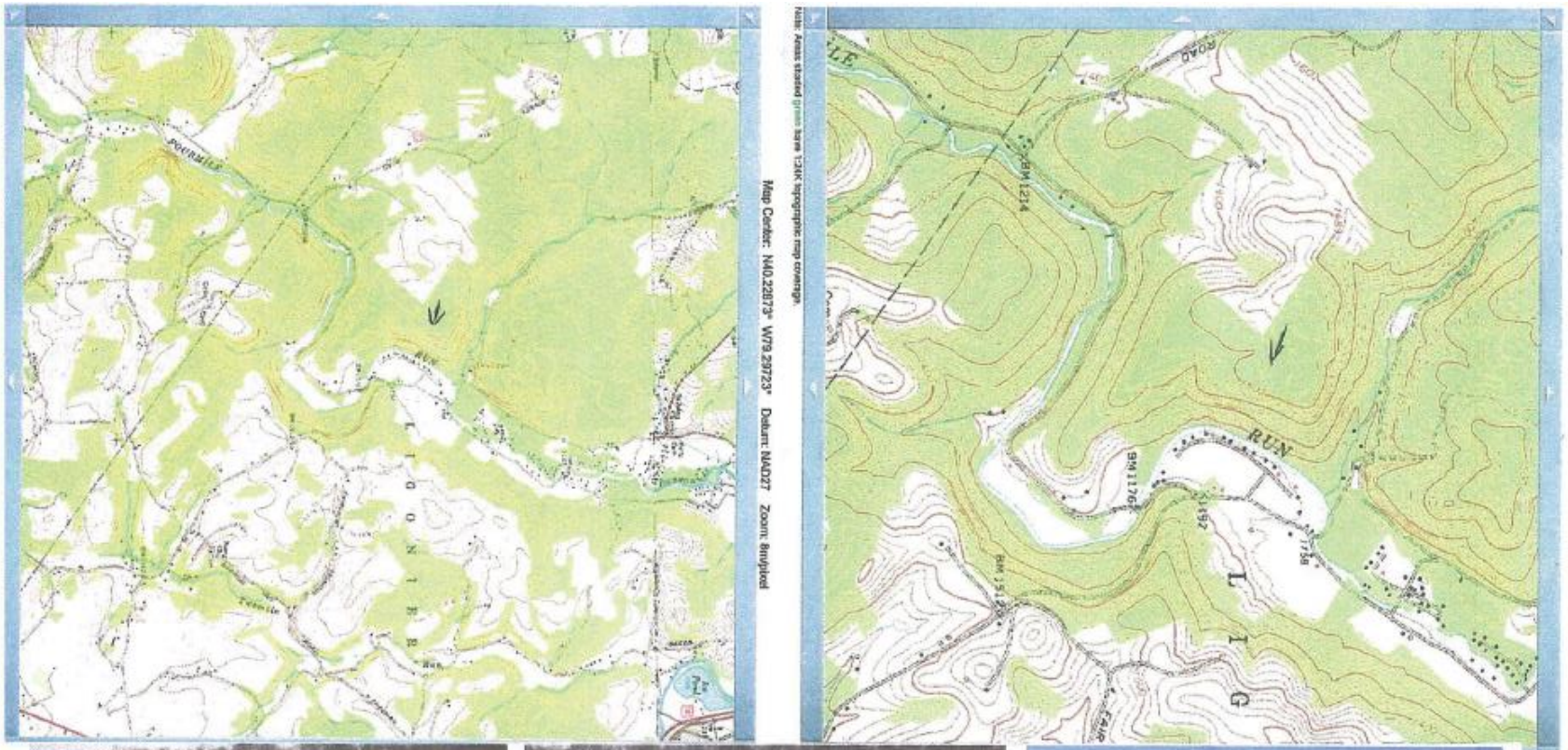
New 2015 Zoning Map



Looking at the **Chestnut Ridge** that is approximately 1,500 ft. high with a greater than 25% slope. The Ridge is **now zoned Agricultural,** as the **Conservation District has been *abolished* !**

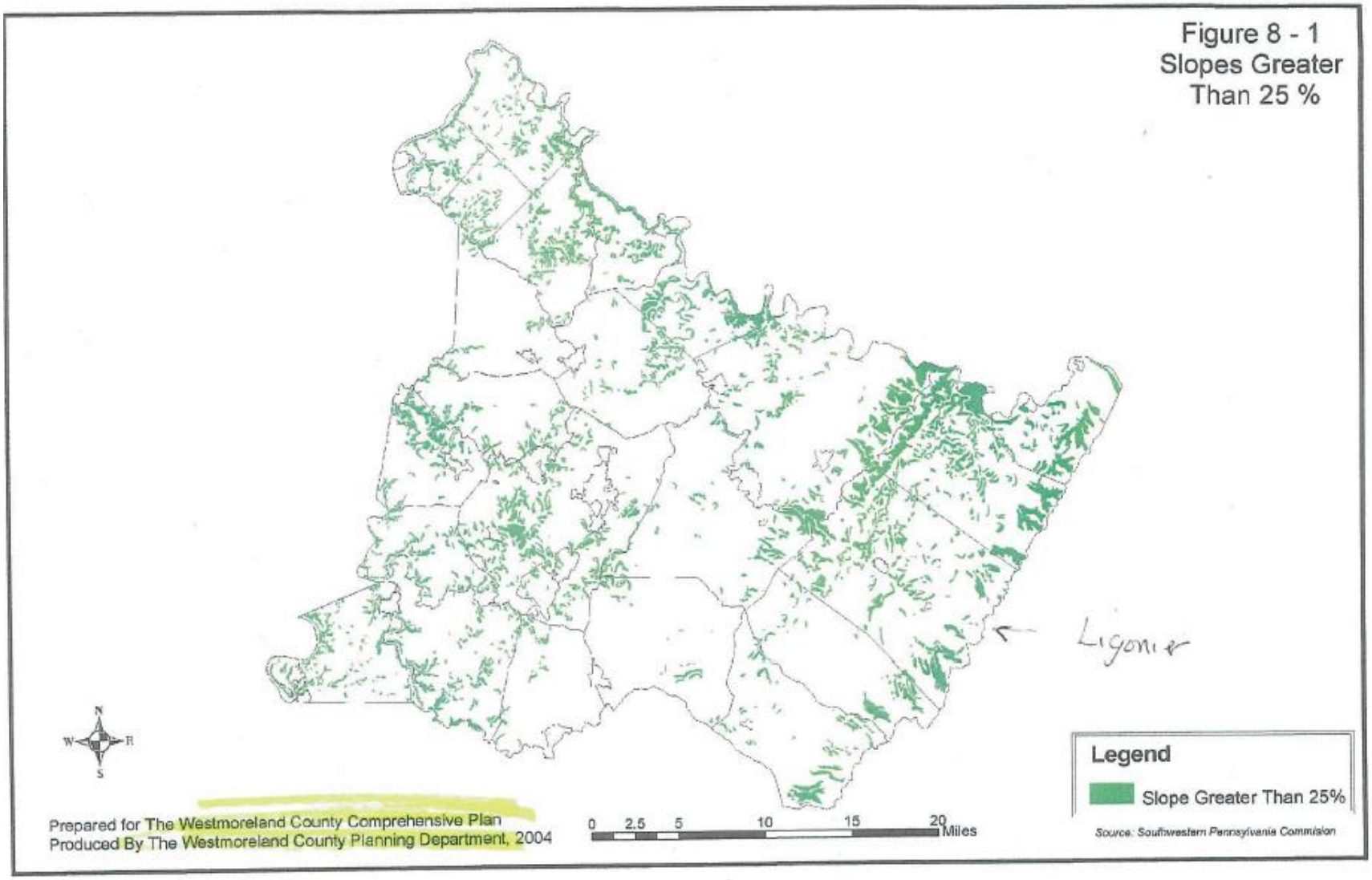


Figure 8 - 1
Slopes Greater
Than 25 %
Ligonier
Legend
Slope Greater Than 25%
Source: Southwestern Pennsylvania Commision
0 2.5 5 10 15 20 Miles
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Prepared for The Westmoreland County Comprehensive Plan
Produced By The Westmoreland County Planning Department, 2004

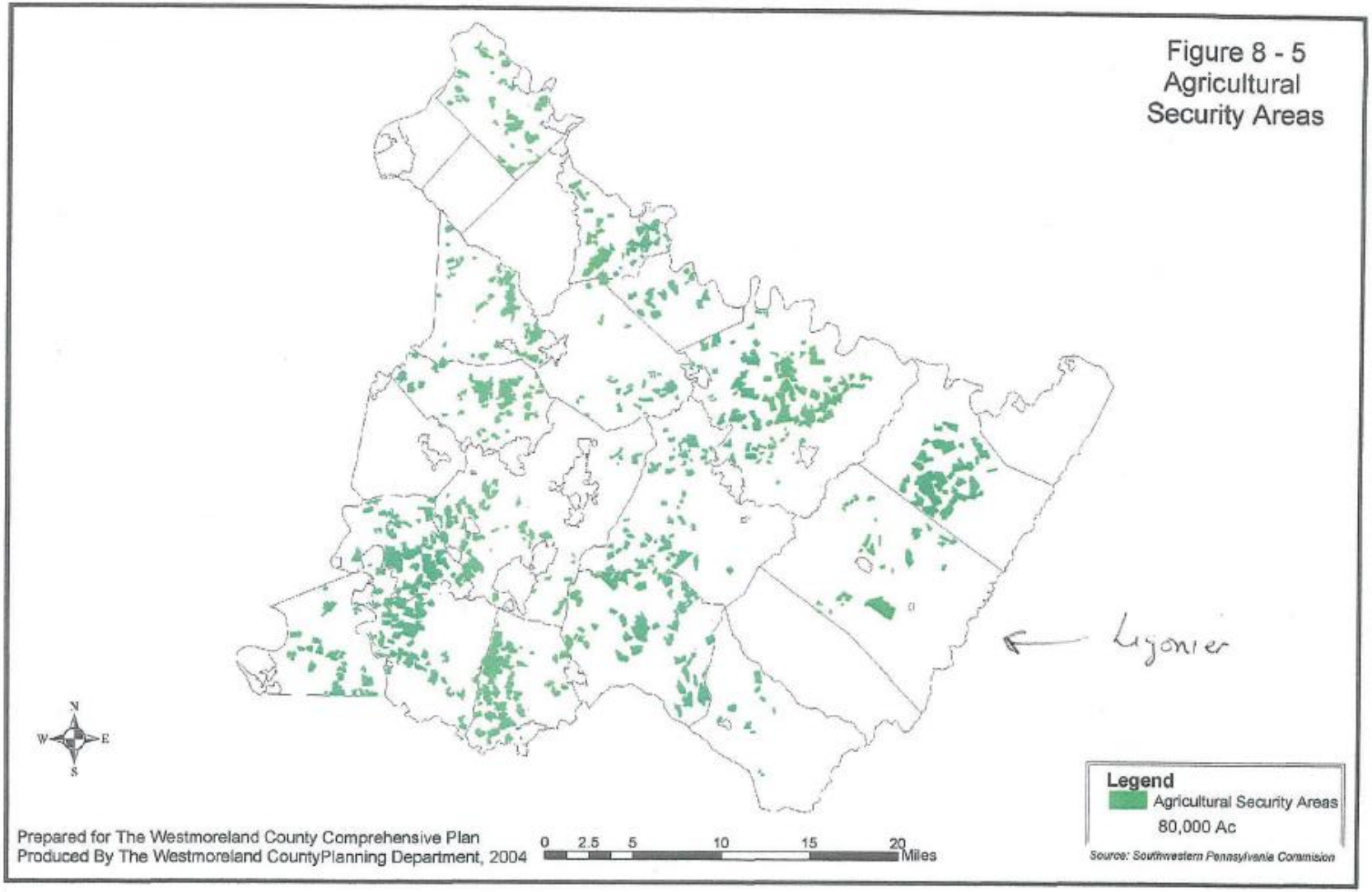
Figure 8 - 5
Agricultural
Security Areas
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Agricultural Security Areas
80,000 Ac
Source: Southwestern Pennsylvania Commision
Prepared for The Westmoreland County Comprehensive Plan
Produced By The Westmoreland CountyPlanning Department, 2004
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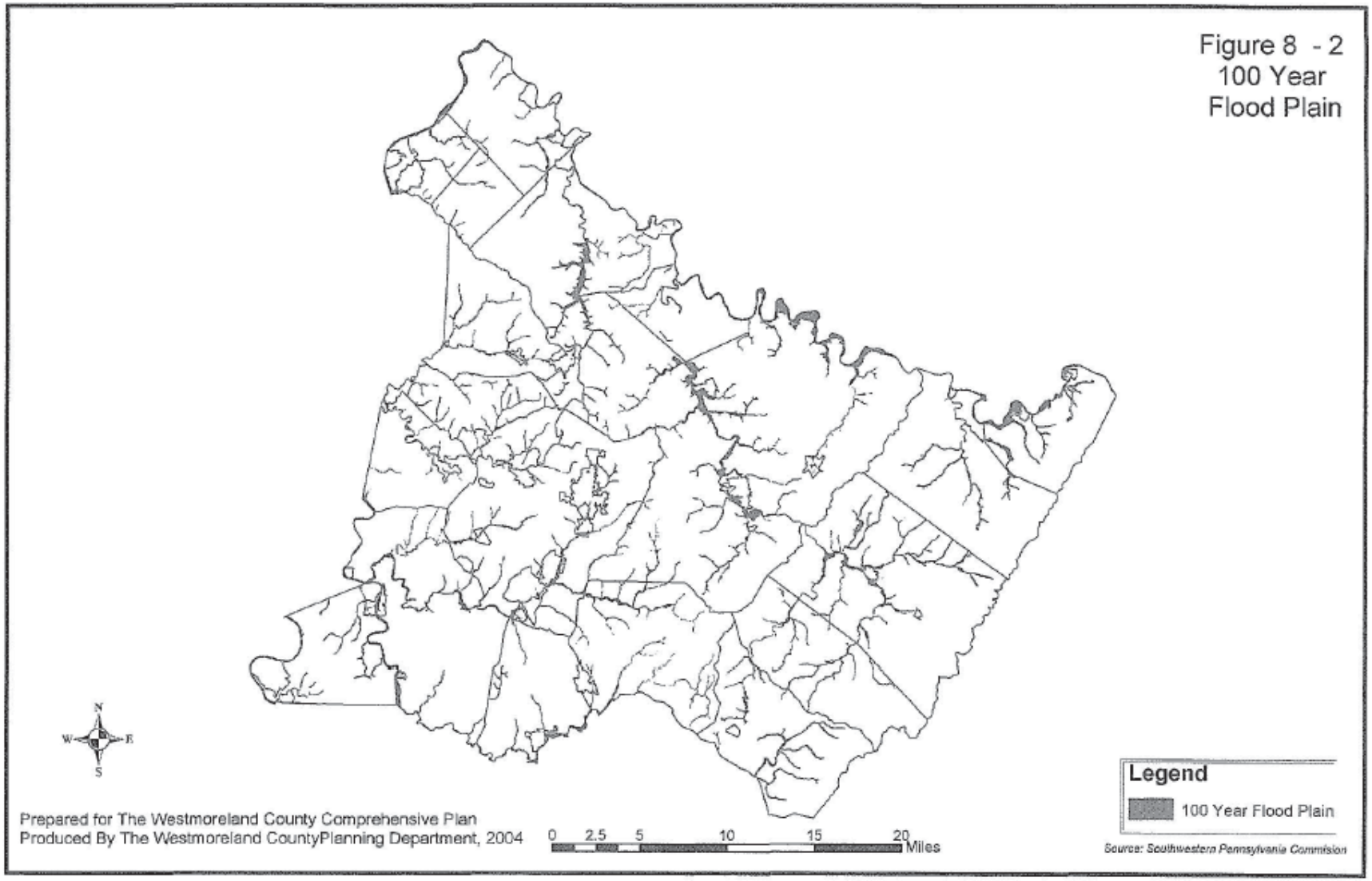
Figure 8 - 2
100 Year
Flood Plain
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Prepared for The Westmoreland County Comprehensive Plan
Produced By The Westmoreland CountyPlanning Department, 2004
0 2.5 5 10 15 20 Miles
Legend
100 Year Flood Plain
Source: Southwestern Pennsylvania Commision

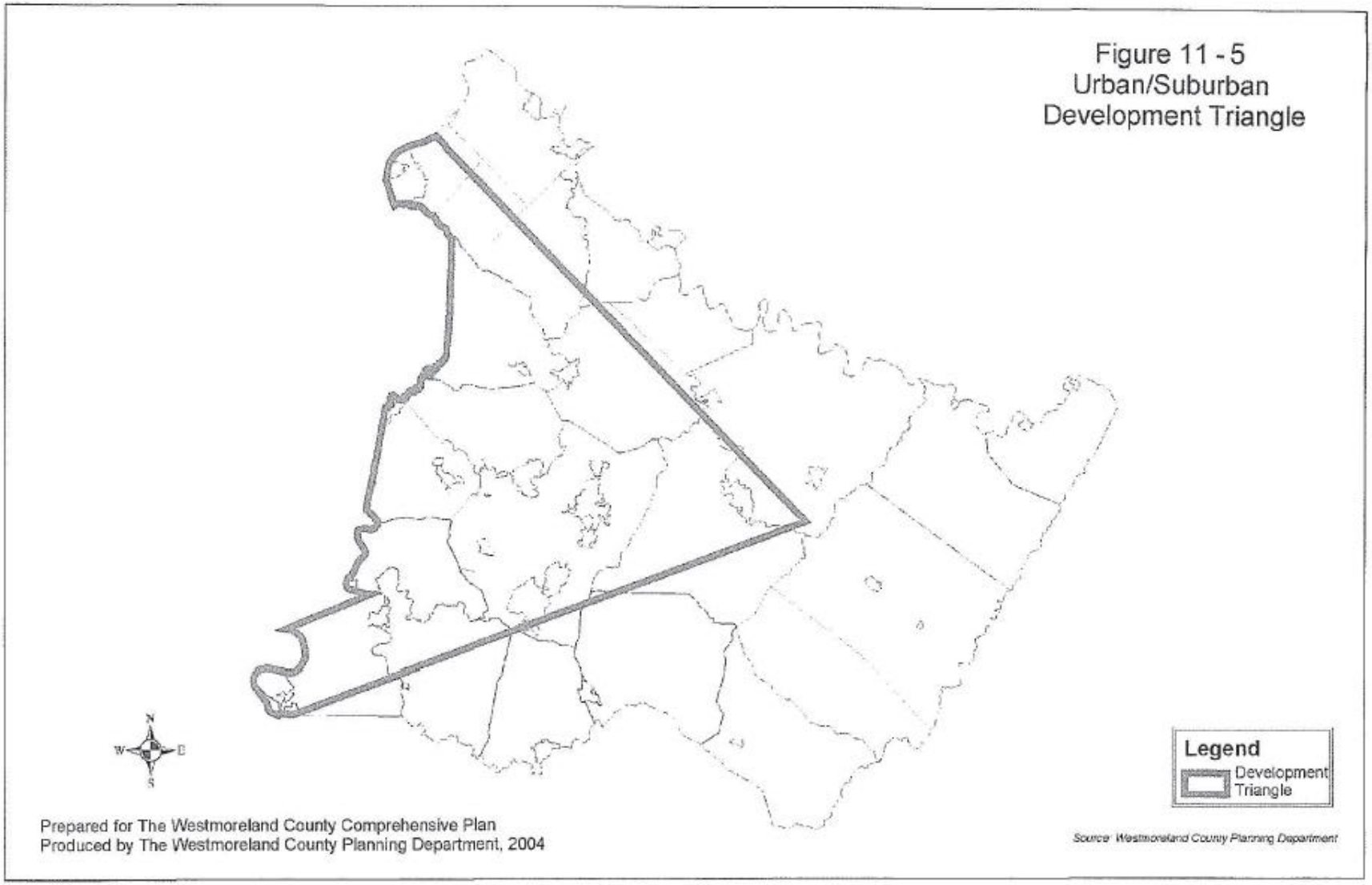
Figure 11 - 5
Urban/Suburban
Development Triangle
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Development
Triangle
Prepared for The Westmoreland County Comprehensive Plan
Produced by The Westmoreland County Planning Department, 2004
Source: Westmoreland County Planning Department

Latrobe Bulletin

Volume 113 - No. 112 WEDNESDAY, APRIL 29, 2015

Ligonier Township passes new zoning ordinance

BY NICK CAMMUSO
Bulletin Staff Writer

Ligonier Township finally has a new zoning ordinance and map.

As expected, supervisors approved the long-discussed and roundly criticized changes on Tuesday, which include regulations for gas well drilling and fracking. The township had until May 9 to adopt the ordinance under the Pennsylvania Municipalities Planning Code's curative amendment process.

"We're not talking about one issue, we're talking about the entire township moving forward," township manager Terry Carcella said.

Supervisors passed the new ordinance, 4-1, with Supervisor Tim Komar casting the lone dissenting vote.

Last month, supervisors chose to not vote Komar's proposed moratorium on unconventional gas well drilling, in which he asked all drilling in the township be halted until a study could be done to determine if a gas well along Route 259 contaminated the water of a nearby resident.

"I'm not against drilling. I'm just very cautious," Komar said after Tuesday's meeting. "I wanted to separate the gas section out of (the ordinance) until we got some more answers."

Under the new zoning ordinance and map, unconventional natural gas drilling — or hydraulic fracking — would be allowed as a conditional use in the township's agricultural and industrial zoning districts. A large portion of the township sits in the agricultural district.

While a 45-minute limit on public comments was put in place prior to Tuesday's meeting, just a handful of residents spoke out on the ordinance before it went to vote.

Many said the same things as in previous meetings and hearings, showing their disdain for the unconventional drilling provisions in the ordinance and the natural gas industry's possible impacts on the local environment and property values. These gatherings had their contentions moments over the past few months, including a five hours-plus public hearing in late March when township officials were challenged (and refused) to drink from a jar of contaminated water.

"You're not here to serve the public, you're here to serve greed and profit," Jan Milburn, a Ligonier Township resident and president of the Citizens to Preserve Ligonier Valley group, said in a written statement. "You have disrespected residents and violated our right to good local government, refusing to answer critical questions about the future of this valley ... our taxes pay for this charade."

After the ordinance was approved, one person in a back row of chairs applauded. Following the meeting, others expressed disappointment — but little surprise — in the supervisors' decision.

(See Ligonier on Page 3)

Ligonier

(Continued from Page 1)

"We knew this was coming, but until it actually happens, you think maybe they listened. But they didn't, except Mr. Komar," resident Jack Milburn said.

Aside from Komar, the other four supervisors supported the changes, for various reasons.

"I voted in favor of it because I think it's the best option for the township," Supervisor Bruce Robinson said.

"I think it's better than what we had," Supervisor Scott Matson said.

"I think it's a pretty good ordinance," Supervisor Paul Knupp said. "If we see that it needs amended down the road, we'll amend it as needed, but we need to get some history with it to see how it's working."

"We have to have a zoning ordinance in place," Supervisors Chairman Wade Thomas said.

Supervisors also approved a number of amendments that were recommended by the planning commission. Solicitor Michael Koms said the changes will go to the Westmoreland County Planning Division, with a hearing to be scheduled some time after the planning department's 30-day review period expires.

One of the approved changes was adding a definition for agritourism or agrotourism, while making agritourism and agrotourism a conditional use in the agricultural district.

The board, however, did not go forward with renaming the agricultural district to "agricultural and natural resource extraction" district, as suggested by the county planning department. Koms recommended that the board not rename the district until the map is initially updated.

Previously, supervisors voted to change the required minimum setback between a protected structure and a well pad on an unconventional natural gas drilling site from 650 to 750 feet, while increasing the buffer from 200 to 350 feet for named streams. They also previously approved the removal of cellular communications towers and apparatus from the R-1 rural residential district.

Other approved amended items on Tuesday included:

• Kennels — Changing the definition of kennels, as is it pertains to commercial kennel operations. The board also removed a clause that said any animal using these facilities had to be at least four months old.

• Mini storage units — Removing these units from the township's agricultural zone as a permitted use; Thomas voted against the amendment.

• Signage — Limiting the maximum sign size in the township's commercial zone from 150 to 80 square feet.

• Bed and breakfasts — Changing the definition of bed and breakfast inns.

• Pasture fences — Removing pasture fences from the definition of farm buildings and other structures.

• Sexually-oriented businesses — Restricting the placement of such businesses, which cannot be located within two miles of an existing sexually-oriented business. Also, Koms suggested that the board not OK the planning commission's recommendation to make them be at least half a mile from a business of any type; he said such a move would put an illegal "de facto ban" on sexually-oriented businesses within the township.

• Various activities — Adding amusement parks, arcades and campgrounds as permitted uses in the township's highway commercial district.

Koms said any future changes to the ordinance can be suggested by anyone and made through an omnibus amendment ordinance, which follows the same procedure as the zoning ordinance.

In other business, supervisors approved the following measures:

• To hold supervisors meetings at 7 p.m. on the second Tuesday of each month at the township municipal building. Meetings are scheduled for the remainder of the year on the fourth Tuesday of each month, will only take place as needed.

• Lawn care quotes, per mow, for the municipal building and Wilpen playground;

• Spring road material bids, along with the summer road project list, which will span 17.9 miles of township roads;

• Possible adoption of a Uniform Construction Code (UCC) opt-in, and a UCC services agreement;

• Reimbursement request for an unspecified amount from Larry Shew, recreation board member;

• To put several excess township items up for sale;

• A fuel bid from Export Fuel;

• Pennington subdivision plan.

Renaming the Conservation Districts of the Chestnut Ridge and the Laurel Mountain to Agricultural was bad enough, but suggesting the naming of this "NEW" District to be "Agricultural and Natural Resource Extraction" is DISGRACEFUL!!!

Over the years people have bought into the Conservation District because of the zoning that protect the extremely high quality natural surroundings of conservation.

How are the rights of the generations of residents who live in and paid their taxes to Ligonier Township being protected, now that practically the entire township has been rezoned?

Attempting to rename the Conservation District as Agricultural and Natural Resource Extraction District is *APPALLING*. This is where some of the cleanest, clearest and the potential for the largest amounts of water for Westmoreland County comes from, not just from the facet!

April 30, 2015

The Importance of Ligonier:

Vital to the region and the State
Total balance of nature's ecosystem
The economics we provide

Department of Environmental Protection
Bureau of Oil and Gas
Planning and Program Management
R. C. S. O. B., 15th Floor
P.O. Box 8765
Harrisburg PA 17105-8765

Dear Commissioners:

I would like to inform you that there are communities that have very much "deep-seated and profound respect", (quoting Governor Wolf's statement about protect our state parks and forests) **and must be protected.** This may be better said in the lyrics of Joni Mitchell's song, The Big Yellow Taxi which states, **"Don't it always seem to go that you don't know what you've got 'til it's gone, they paved paradise to put in a parking lot."**

You see I live in **Ligonier,** a Township, Borough, Villages & Community that has worked very hard for decades developing our pristine surroundings. We have become known as **"the Jewel"** of the Laurel Highlands where people come from all over to live, work; play; relax; fish in our pristine "cold-water" streams; hike; bike; camp; enjoy our culture, history and museums; take in our Scenic Byways; shop in our unique specialty shops; and dine in our exceptional restaurants. They even come in bus loads from various locations not only to shop but to partake in our special events, such as Fort Ligonier Days.

The Diamond (central intersection) **and the surrounding shops of Ligonier Borough** are on the **National Register of Historical Places.** On Monday April 13, 2015 **WPXI TV** News reported that ". "Ligonier Pennsylvania has been named as **one of the 18 "Most Charming Small Towns Across *America*,"** according to CountryLiving.com. When you click on their site you will find photos of all 18 towns, including a beautiful photo of Ligonier's Bandstand on the Diamond. Ligonier was even one of the locations **chosen for the new movie, "Let it Snow",** which hosted the film crew in March 2015.

Click on "visitligonier.com" and you will find all the different amenities that make up Ligonier, which includes: **Idlewild Park,** **the #1 Kids Park in the World** **and Soak Zone** water park, which recently received a plaque from the **Pennsylvania Historical and Museum Commission**; the **National Register** site of **Fort Ligonier,** which contains a large portion of the area's history including writings by George Washington; Laughlintown, a stagecoach town along the Forbes Road that holds **Compass Inn Museum,** **also on the National Register**.

In addition to the above amenities, you can't forget about our magnificent picturesque views of **the majestic Laurel Mountain and Chestnut Ridge** that are crisscrossed by the **Southwestern Pennsylvania Industrial Heritage Project** (Heritage Route), **Pennsylvania Scenic Byways** and the **Lincoln Highway Heritage Corridor.**

The Chestnut Ridge and the Laurel Mountain, also have the capability of producing some of the **largest amounts of pure, clean mountain spring water in all of Westmoreland County**. This mountain spring water was the very essence of Rolling Rock Beer when it was brewed in Latrobe, as Ligonier Township not only houses Ligonier's Reservoir but Latrobe Reservoir as well. (see attached maps: Penn State [water & aquifers] and DCNA [rock formations & aquifers], and Brook Trout information.)

In 2014 the Somerset Daily American published the **"Ligonier Magazine.** It took years to create this **"True Gem"**, **as Ligonier is called in the magazine**, along with millions of dollars in grants and individual funding, hard work and devotion. (see the March 20 newspaper clipping). Additionally, **Ligonier and the Laurel Highlands bring in millions of dollars in revenue** due to tourism.

Here is our dilemma. Marcellus Shale has now knocked on our door and it appears that this modern day "gold rush" has bitten some of our local officials. It turns out that our new Supervisor Chairman has signed leases with the gas companies along with the Chairman of the Planning Commission, and our newly elected members have taken upon themselves to **totally rewrite our Zoning Ordinance** and have pretty much **rezoned the entire Township of Ligonier** to be mainly Agriculture, which through conditional use can allow fracking, according to the new ordinance. (see attached maps) This is an outrageous statement. **How can anyone justify toxic chemicals & toxic waste, both solid and airborne, compatible with our food, water and the air we breathe?** (see Dr. Carpenter's report)

We have also been told by the Supervisors that "it is **the state mandating** zoning ordinances to include this new industry" – **allowing it in our Agricultural Districts?**
Is this truly consistent with the concept of the County's Comprehensive Plan and the State's Municipality Planning Code? (see attached)
Looking at what is posted on the websites, I cannot see the connection and/**or justification**.

My question is, why would the County and the State jeopardize this exceptional, multi-million dollar money making setting by mandating an industry known to have significant risks (see Dr. Carpenter's report), **to override what has taken generations of time, effort, hard work and financial support to build and create a deep rooted, harmonious way of life, let alone part of the County's largest supply of purest water?** The thought of the dramatic increase of truck traffic around the Ligonier Diamond (see attached March 13 article.) and over our narrow twisting country roads that the biker's travel is also of extreme safety concern should this industry move in to our area. **Thick, lingering fog is a known common, factual occurrence in our valley**, which will become **SMOG**, an *extreme* health issue, should Fracking be allowed near us.

Members of the community have taken a stand on the ethics issues. *Numerous* people have presented documented facts and opposition. Professionals and people who have experienced the impact of the extraction process have spoken in public hearings, along with multiple documentation being presented to the Supervisors. Yes, even our children have addressed the Commission with their pleas for future generations, but it appears that the officials have turned a deaf ear to the community, as they keep saying that they are following the state's mandate of making an allowance for Marcellus Shale development.

In addition, I have attached a scenario diagram. We live on a riverbed/floodplain, which also contains wetlands, between two portions of the **Chestnut Ridge**, which are 1,500 feet up on either side. If a hydraulic fracturing well would be placed above us on the Ridge, which **was zoned Conservation and is now Agriculture**, for which the County apparently agrees is compatible as they made the suggestion to combine Agriculture and Industry as a "Zoned District" name, which the Supervisors are highly considering on doing, this could leave our home only 5,500 feet and our water table only 4,500 feet from the actual fracking process with no protection, as the requirement as it stands now, is a **protection zone of only 1,000 feet around the wellhead and not the entire process. W H Y ? ? ? ?**

The entire zone of fracking must have protection, even though the process is underground. This is where the toxic chemicals are being injected under extremely high pressure, the potential of releasing Radon and other gases, and the possibility of water contamination are taking place. (see attached.) The homeowner insurances are starting to take a stand against **"man-made conditions".** We recently received a "Policy Endorsement" which lists **hydraulic fracturing** as one of the losses **not covered**. (see attached Policy Endorsement) **So who will be held responsible should loss occur?**

The issues are not only our health, well-being, economy, food chain, air, water and future generations, but home safety and property values are also at risk! This is what you are making decisions/laws for. Our lives & future are in *YOUR* hands!

I am a farmer's daughter and my grandfather was the first Master Farmer in Westmoreland County. Protecting our land and water has been deeply rooted into me since I as a child. Without land, that of which produces our water, food and yes even our air through foliage photosynthesis, we have nothing. I worked for 26 years in a Clerical/Medical Secretary position at a local hospital. As an Advertising Associate for a local newspaper, I worked very hard the past 9+ years with & for the people promoting Ligonier and the Laurel Highlands. I have a very good understanding as to what makes this outstanding community function, and it appears 10 times more than our current administration. They don't understand and they don't want to understand. Money is talking, so there is no logical thinking.

PLEASE !! Recognize the rights of all citizens and help others to understand that one law does not always fit every situation. We must look forward for future generations, not by continuing to rape our mother earth, but by preserving and looking at other alternatives, because some day there will be nothing left, except for despair once this "BOOM" passes. History is known to repeat itself, just **look at the gold, coal and other mineral extraction *ghost towns***.

"Don't it always seem to go that you don't know what you've got 'til it's gone . . "

If you have any questions, please don't hesitate to contact me. Thank you in advance for your time and consideration to our frightful situation. I am looking forward to your response.

Respectfully,

Patty Ostrowsky

143 Ligonier 157 Road
Ligonier PA 15658

724-331-4485

PA Municipality Planning Code Act

Article III, Comprehensive Plan, Section 301, Preparation of Comprehensive Plan - - (a) The municipal, multimunicipal or county comprehensive plan, consisting of maps, charts, and textual matter, shall include, but need not be limited to, the following related basic elements:

(2) " A plan for land use, ... parks and recreation, **preservation of prime agricultural lands** . . "

(2.1) "A plan to meet the housing needs of present residents and of those individuals and families anticipated to reside in the municipality . . . " (there are numerous discrepancies in the NEW Ligonier Township's Zoning Map and Ordinance, **one which includes my District, south of Darlington which has us zoned as R-2 Suburban.** We consist of the features that are described in **R-1 Rural,** as we have **natural features such as steep slopes, floodplains, stream corridors, wetlands and mature woodlands**). I finally have the Supervisors agreeing to look into the "Mistake" on the Zoning Map, that has the WRONG color for our Rural District. Our District is approximately 6 miles from the nearest town.

(4.1) "**A statement** of the interrelationships among the various plan components, which may include an estimate of the environmental, energy conservation, fiscal, economic development and social consequences on the municipality." [There has been no documentation provided to the residents of the Township as to this provision that I am aware of. I even asked about impact and feasibility studies and received no response.]

- The Supervisors have eliminated the Conservation Districts and Rezoned the Conservations Districts as Agriculture, stating that Marcellus Shale Drilling is compatible with Agriculture as a Conditional Use. [the residents, including myself have asked numerous times for the rational of this, but we have received no defined response. We ask questions & no answers are given.]

(5) "**A statement indicating that the existing and proposed development of the municipality is compatible with the existing and proposed development** and plans in contiguous portions of neighboring municipalities, or a statement indicating measures which have been taken to provide buffers or other transitional devices between disparate uses, and **a statement indicating that the existing and proposed development of the municipality is generally consistent with the objectives and plans of the county comprehensive plan.** " [Again, there has been no documentation provided to the residents of the Township as to this provision that I am aware of]

Where is the statement containing the rational that Marcellus Shale Drilling is compatible with agriculture? Refer to the January 28, 2015, Pittsburgh Post-Gazette's article. "DEP changes rules for oil, gas sludge at landfills"

- " . . . **concentrated frack fluid waste wasn't being adequately diluted** at state landfills **over the past several years** , instituted a new policy starting Jan. 1." REALLY?!?!
- Radioactive waste is mixed with non-radioactive waste "by a formula spelled out in a spreadsheet that takes into consideration the total tonnage and the concentration of radioactive elements."
- "So if a landfill accepts **1 ton** of sludge, it will count as **3 tons**", according to the new calculations.

- "**Radon**, which in high enough concentrations is **a leading cause of lung cancer and is particularly plentiful in Pennsylvania."** (see attached information)
- "During the first 10 months of the year, 430,317 tons were headed for landfills."
    - " . . we have almost 50 landfills operating in Pennsylvania. Of those, just more than a dozen regularly accept low-level radioactive waste from oil and gas operations."

According to Kenneth Reisinger, Director of DEP's Bureau of Waste Management.

Now please refer to Dr. David Carpenter's report on the effects to the environment and humans due to the various components, chemicals and radiation from oil and gas drilling. (This particular study was for Middlesex Township, although Dr. Carpenter has performed studies in five states, including Pennsylvania, and in New York who banded Marcellus Shale. His basic findings on the various elements, procedures and process are adaptable to the industry as a whole.) He states in his **Conclusions, "Residents and those who regularly visit** the Township for work or school **will be vulnerable to exposures to chemicals in the air and water. These chemicals will also get in food sources, especially those raised in local farms and gardens,** and **the exposure will result** in increases in rates of cancer, nervous and respiratory system effects, as well as an overall reduction in the quality of life." Domestic animals, pets and Wild life [game animals, i.e.: deer, turkey, fish, etc.] (food consumption), will be subject to the exposure, the same as humans. **"Much more research is needed to improve the safety of unconventional deep shale gas extraction and perhaps someday technical advances will allow extraction of shale gas in a fashion that does not cause significant threats to human health. However, that is not the case today."**

(7) iii "Identify a plan for **the preservation and enhancement of prime agricultural land** and **encourage the compatibility of land use regulation with *existing* agricultural operations."** **Again, where is the statement containing the rational that Marcellus Shale Drilling is compatible with agriculture?**

(b) "The comprehensive plan shall include a plan for the reliable supply of water, considering current and future water resources availability, uses and limitations, **including provisions adequate to protect water supply sources."** (see the Penn State [water] & DCNR [rocks/aquifers] maps)

- There are numerous properties in Ligonier Township that have well water. Provisions have been made to address the Latrobe and Ligonier reservoirs, but nothing is being taken into account for well water, as we have been told that "spot zoning" is not lawful. **But don't forget that there are a fairly large number of residents that were in the Conservation District, that no longer exists, so we were protected until now.**
- I have found numerous reports pertaining to rock formations, aquifers, and water, "gallons per minute", and **Ligonier has the capability of providing some of the largest amounts of clean water in Westmoreland County.** Our fresh cold water streams are the home to the State's fish, the Brook Trout. The one Penn State map/report also shows the Wilpen area, where the water has diminished greatly due to the disturbance of coal mining. (Once you disturb the land, it is damaged forever.) How is this providing for the future?
- Even though there are great concerns about property outside the present DEP water testing zone as far away as 5,000 feet, one such property is the Nelson property on Rt. 259 in Ligonier Township that involves 4,000 feet , **Supervisor Tim Komar called for a fracking moratorium, long enough to see what the DEP outcome concludes, no one would second motion.** (See March 11, 2015, Latrobe Bulletin newspaper clipping)

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Tuesday, April 14, 2015 | 11:31 a.m.

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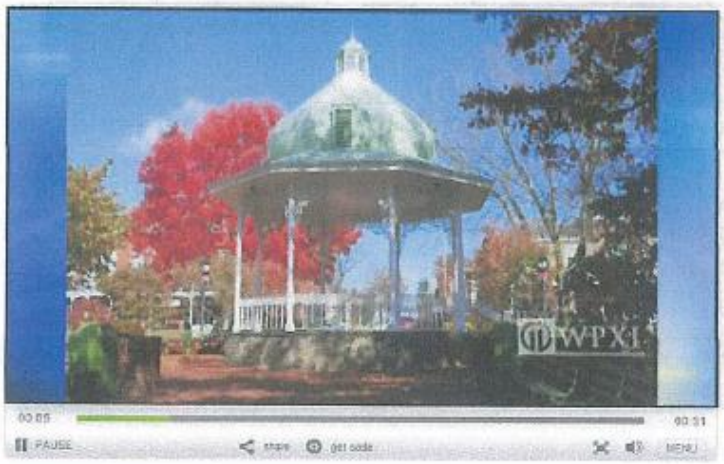
Posted: 10:53 a.m. Thursday, April 2, 2015

Ligonier makes list of 'Most Charming Small Towns Across America'



Related

LIGONIER, Pa. — Ligonier has been named as one of the 16 "Most Charming Small Towns Across America," according to CountryLiving.com.

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Stories of the day...
- Check out the new stores, eatery coming to Ross Park Mall
- Judge orders couple to get married, implies lesser sentence
- GALLERY: 2015 New York Auto Show
- Report: Girlfriend runs over sex offender caught trying to abuse girl

CountryLiving.com polled its Facebook fans and compiled the list from there. To be eligible, the town must have a population of no more than 13,000.

According to the website, Ligonier has an official population of just 1,560.

"Settled in the 1760s, Ligonier is home to one of the oldest amusement parks in the country," the website says. "One of its most charming features: The historic, downtown square still has a bandstand at its center."

- **For more information on Ligonier, CLICK HERE.**

Other towns that made the top 16 are Mystic, Connecticut and Breckenridge, Colorado.

- **CLICK HERE to see the entire list.**

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VALLEY VIEWS

Each week the Ligonier Echo polls Valley residents, employees and visitors about the issues that directly affect their community.

Ligonier has been named one of the 18 "Most Charming Small Towns Across America," according to CountryLiving.com.

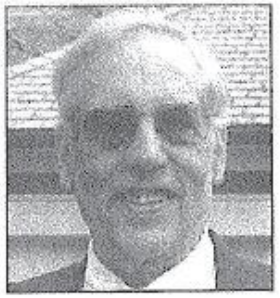
What makes it charming?

"I believe it's the small-town atmosphere that stands out for ranking Ligonier no. 1. The Diamond is central to the town and its attraction with the surrounding shops to walk to makes it a convenient and quaint place to stop and enjoy our beautiful Ligonier. I've lived in the area for 62 years and most of that time in Waterford. I would never think of living anywhere else."

Pat Marsh
61, Waterford

"Ligonier is a quaint, small town and, when you get right down to it, its historic significance coupled with its charm makes it an unbeatable place to live. All you have to do is walk any back street in town and you will find that same charm. There aren't too many towns in America that can boast this quality within its borough limits."

Shirley Iscrupe
63, Ligonier Township



"We have a lot of volunteers in various organizations who work to make Ligonier attractive including: Fort Ligonier, Ligonier Valley Chamber of Commerce and other civic groups. The people of Ligonier are friendly and we exude pride in our town."

Richard Flickinger, Esq.
74, Ligonier

"As a shop owner, we have the privilege to see many visitors in Ligonier ranging from California to New York. In fact, one of my regular customers from St. Louis would always say when they visit Ligonier is a 'little piece of heaven.' Also, as you walk down the streets of Ligonier you'll notice how everyone is so friendly and quick to say hello."

Cindy Purnell
68, Ligonier

"There are a lot of things that make Ligonier so charming. It's small-town atmosphere, friendly people, the convenience of the stores, being able to walk the town without having to drive and the familiarity among the residents. I've traveled many places and have lived elsewhere in the country, however, I treasure my 30 years of Ligonier living. Ligonier is truly the best!"

Tommie Korneke
60, Ligonier

Latrobe Bulletin

Volume 113 - No. 78 FRIDAY, MARCH 20, 2015

Photos by Nick Cammuso

Idlewild and SoakZone sales and public relations manager Jeff Croushore greets Westmoreland County Commissioners Charles Anderson and Tyler Courtney after the Ligonier Township family destination received a $5,000 capital grant and $20,000 marketing grant at the annual Westmoreland County tourism grant program ceremony on Thursday at Westmoreland @rt 30 in Unity Township.

Tourism grants doled out to area groups

BY NICK CAMMUSO
Bulletin Staff Writer

A total of 71 area organizations and businesses were presented 77 grants through Westmoreland County's tourism grant program during a reception Thursday at Westmoreland @rt 30 on Route 30 in Unity Township.

All told, a record $401,191 in capital or marketing grants were handed out to help draw additional visitors to the region.

Since the program's inception more than a decade ago, $3.9 million in grants have been distributed, said Ron Virag, president and CEO of the Laurel Highlands Visitors Bureau, which administers the program.

Grant funding comes from a 3-percent tax levied on overnight lodging accommodations in Westmoreland County. One-third of the revenue from the hotel room tax goes toward the grants, which can be used for capital improvements or marketing outside of Westmoreland County.

Grant recipients include:

• Antiochian Village, $3,000 for marketing materials and to create a new group tour package;

• Avonmore Community Association, $1,125 for distributing brochures through the Laurel Highlands Visitors Bureau;

• Bushy Run Battlefield, $1,500 for partnership with Visit Pittsburgh to promote 252nd anniversary of the Battle of Bushy Run in targeted publications;

• Caddie Shak, $5,000 for billboard, television, online and print advertising in

(See Tourism on Page 3)

OLGA HERBERT

HOLLY MOWREY

(Continued from Page 1)

Allegheny and Butler counties:

• Champion Lakes Golf Course, $3,000 (capital grant) to install two digital sign boards along Route 711;

• Christian Family and Children's Center, $1,500 to advertise the seventh annual "Alloutpraise!" music festival this summer;

• Christmas in the Mountains, $2,500 for marketing to advertise online with local television stations and other media outlets, along with www.laurelhighlands.org;

• Compass Inn Museum, $3,000 to increase marketing efforts through partnerships with the Laurel Highlands Visitors Bureau, radio advertising and ads in Johnstown Magazine;

• Courtyard by Marriott Greensburg, $7,500 to complete a photo shoot of its newly renovated hotel, and create and distribute new rack cards;

• Delmont Apple 'N Arts Festival Inc., $4,000 to promote annual festival with three roadside billboards, radio appearances and search engine optimization;

• Derry Railroad Days, $500 to advertise the annual three-day event in Derry Borough;

• Escape to Donegal, $4,000 to use for ads on WTAE-TV (Channel 4), www.laurelhighlands.org and in print media;

• Family Festivals Association Inc., $7,000 to promote the Pennsylvania Arts & Crafts Labor Day Festival;

• Festa Italiana di Vandergrift, $4,000 to promote the ethnic heritage festival through a multi-media campaign in the tri-state area;

• Forbes Trail Chapter of Trout Unlimited, $1,000 for ads in Mid-Atlantic Fly Fishing magazine and the Laurel Highlands Visitors Bureau destination guide, and $1,500 (capital) to add 25 tons of limestone sand to the Run Rock area;

• Fort Ligonier, $12,000 for a multi-media marketing campaign to promote Fort Ligonier's events and battle re-enactments;

• Fort Ligonier Days, $13,500 to promote annual event through online advertising, brochure distribution, and television and radio ads;

• Four Seasons Brewing Company, $2,000 for ads in Craft Pittsburgh Magazine and Arnold Palmer Regional Airport;

• Glengarry Golf Links, $3,500 to create a cooperate overnight golf getaway package;

• Great Allegheny Passage, $12,000 for website upgrades, production and distribution of trail map and trial town brochures;

• Greater Latrobe-Laurel Valley Community Chamber of Commerce, $10,000 to promote the Great American Banana Split Celebration in August;

• Greater Monessen Historical Society, $2,000 to increase awareness of museum and its programs through social media ads and brochure distribution with the Laurel Highlands Visitors Bureau;

• Greenhouse Winery, $2,000 for the production of commercial print brochures and the installation of directional signs to its new location;

• Haunted Hillside, $3,000 for new marketing efforts to increase attendance at haunt events;

• Historic Hanna's Town, $7,000 to promote special events and programs through a multi-media marketing campaign;

• Holiday Inn Express & Suites Donegal, $7,000 for the creation of a new website;

• Hot Shots Indoor Sports Arena, $10,000 for a Laurel Highlands Visitors (LHVB) Bureau membership and bids for both regional/national in-line and deck hockey tournaments;

• Idlewild and SoakZone, $5,000 (capital) to purchase "O the Owl" costume for a live children's show, and $20,000 for a northeastern Ohio marketing campaign, which will include outdoor, TV and radio ads;

• Kerber's, $5,000 to promote activities with a LHVB partnership, an additional billboard on Route 30 and an updated brochure;

• Linshaw Productions & Marketing Inc., $15,000 for a multi-media campaign to target the group travel market;

• Laurel Highlands Heritage Festivals Marketing Cooperative, $5,000 for ads on www.laurelhighlands.org, along with television and outdoor advertising;

• Laurel Highlands Nordic Ski Patrol, $2,000 (capital) to upgrade medical search and rescue equipment;

• Laurel Highlands Snowmobile Club Inc., $500 to promote races and trail system in the monthly Keystone Snowmobiler publication;

• Laurelville Mennonite Church Center, $1,000 to create an oversized post card to increase visitation;

• Ligonier Theatre: Home of the Valley Players of Ligonier, $2,500 to promote plays and performances through brochure distribution and a new partnership with the Mountain Playhouse;

• Ligonier Valley Chamber of Commerce, $3,000 to expand awareness of valley's events, shopping, dining, lodging and attractions;

• Lincoln Highway Heritage Corridor, $1,945 to create a professionally-designed rack card and participate in the LHVB's brochure distribution program, and $2,500 (capital) to create two new exhibits;

• Living Treasures Wild Animal Park, $5,000 for a billboard and digital marketing campaign;

• Love Receptive Series, $2,000 for participation in industry travel shows;

• Motordrome Speedway, $10,000 for a multi-media campaign that will include television, radio and digital advertising;

• Mount Pleasant Glass & Ethnic Festival, $7,000 for a multi-media campaign that will include television, radio and digital advertising;

• Mount Pleasant Glass Museum, $1,000 for print and digital marketing campaign, and $2,000 (capital) for new signage and restoration of a display case;

• Mount Laurel Chamber of Commerce, $2,500 for new website;

• Mountain Watershed Association Inc., $2,000 (capital) to finish signage on a recently completed bridge project, in addition to stairs up Route 31;

• NK Hospitality LLC, $3,000 to help increase wedding business with ads on www.weddingwire.com and www.weddingclickers.com;

• Overly's Country Christmas Inc., $3,500 to fund billboards, along with print and social media advertising;

• Ramada Ligonier, $10,000 to increase marketing efforts in group, consumer and online initiatives;

• St. Vincent College Corporation, $4,000 to feature its new motorized passenger replica of "Mr. Rogers' Neighborhood" trolley in a new trolley tour narration and printed guide;

• SandView Farms, $2,000 for a multi-media marketing campaign;

• Sand Hill Berries, $2,000 for an expanded multi-media campaign to promote its annual open house event;

• Scottdale Fall Festival, $2,000 for a marketing campaign that includes a full-color schedule of events flier;

• Southern Alleghenies Museum of Art at Ligonier, $2,000 (capital) for construction/installation of a free-standing sign on the property featuring the museum's name and logo, and $2,000 to highlight exhibit of 50 exclusive pastel paintings;

• Southwestern Pennsylvania Council for the Arts Inc., $500 for its print and bulk mail advertising campaign;

• Springhill Suites by Marriott Pittsburgh-Latrobe, $8,500 for social media advertising, along with ads in City & Shore Magazine, on www.golftrips.com and www.laurelhighlands.org;

• Stage Right!, $5,000 to promote its December holiday-themed experience;

• Stahlstown Flax Scutching Festival, $2,500 for LHVB's brochure distribution program, along with Internet, news and social media marketing campaigns;

• The Country Cupboard and Nature Run Wood Works, $2,000 to promote its handcrafted furniture in *The Country Sampler*;

• The Geyer Performing Arts Center, $4,000 for a multi-media marketing campaign;

• The Palace Theater, $25,000 for a multi-media marketing campaign;

• The Trailside, $1,000 for ads in the Trailbook and on the Great Allegheny Passage website;

• Toymeister Collectible Toys, $500 for a print marketing campaign;

• Trail Town Program, $626 for an ad in the Trailbook;

• Victorian Vandergrift Museum and Historical Society, $995 for an ad in the Laurel Highlands Destination Guide;

• West Newton Station, $12,000 to assist the Regional Trail Corporation with operations;

• West Overton Museums, $8,000 (capital) to fundraise and construct an orientation theater, with presentations in period clothing, and $3,000 for the creation of a website;

• Westmoreland Agricultural Fair, $5,000 to expand advertising efforts;

• Westmoreland Arts & Heritage Festival Inc., $15,000 for a multi-media campaign;

• Westmoreland County Community College, $2,000 to design and print a color brochure highlighting its culinary services;

• Westmoreland Heritage, $20,000 for a multi-media marketing campaign, including ads in numerous publications;

• Westmoreland Museum of American Art, $25,000 to support the "Bridging the Gap" public art project;

• Westmoreland Symphony Orchestra, $2,000 for radio and Internet advertising.

TOURISM STATISTICS

PA is the 5th Leading Destination State in the United States

Economic Impact of Pennsylvania's Travel and Tourism Industry report demonstrate the vital importance of the travel industry to Pennsylvania's economy and summarizes visitor spending, employment and earnings derived from traveler spending, the contribution of the travel industry to Pennsylvania's gross state product, and tax receipts derived from traveler spending.

The Pennsylvania Tourism Office and *Tourism Economics* worked together to produce the economic impact of travel and tourism report starting in 2009. Below is a summary of the 2011 results:

- Commonwealth hosted 184.7 million domestic and international travelers
- Total Visitor Spending--$37.2 billion
- Total Economic Impact--$39.1 billion
- Total Jobs Supported--461,249
- State & Local Tax Revenues--$3.8 billion

The 2010 Annual Travel Profile done by *Longwoods International* showed the following for the Laurel Highlands:

- 2.7 million overnight trips
- 4.1 million day trips
- 52% of overnight and day trips find it important to access our region by car
- Top factors for visiting the area: unique local food, fun activities for families, shopping and cultural activities, camping and the Laurel Highlands is a 2-4 hour ***drive*** from home

For more tourism statistics and research information, go to the VisitPA website.
Be sure to learn more about "PA Scenic Byways", and "Path of Progress" - the Heritage Route markers.

www.visitpa.com/scenic-byways www.routemarkers.com/usa/Pennsylvania/Path_of_Progress

"America's Industrial Heritage Project" - www.lib.iup.edu/depts/speccol/ead/mg74.html

Water

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Pennsylvania Geology Home Browse All Favor

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Reference URL Share Add tags Comment Rate Save to favorites

Generalized geologic map of Westmoreland County and locations of selected wells

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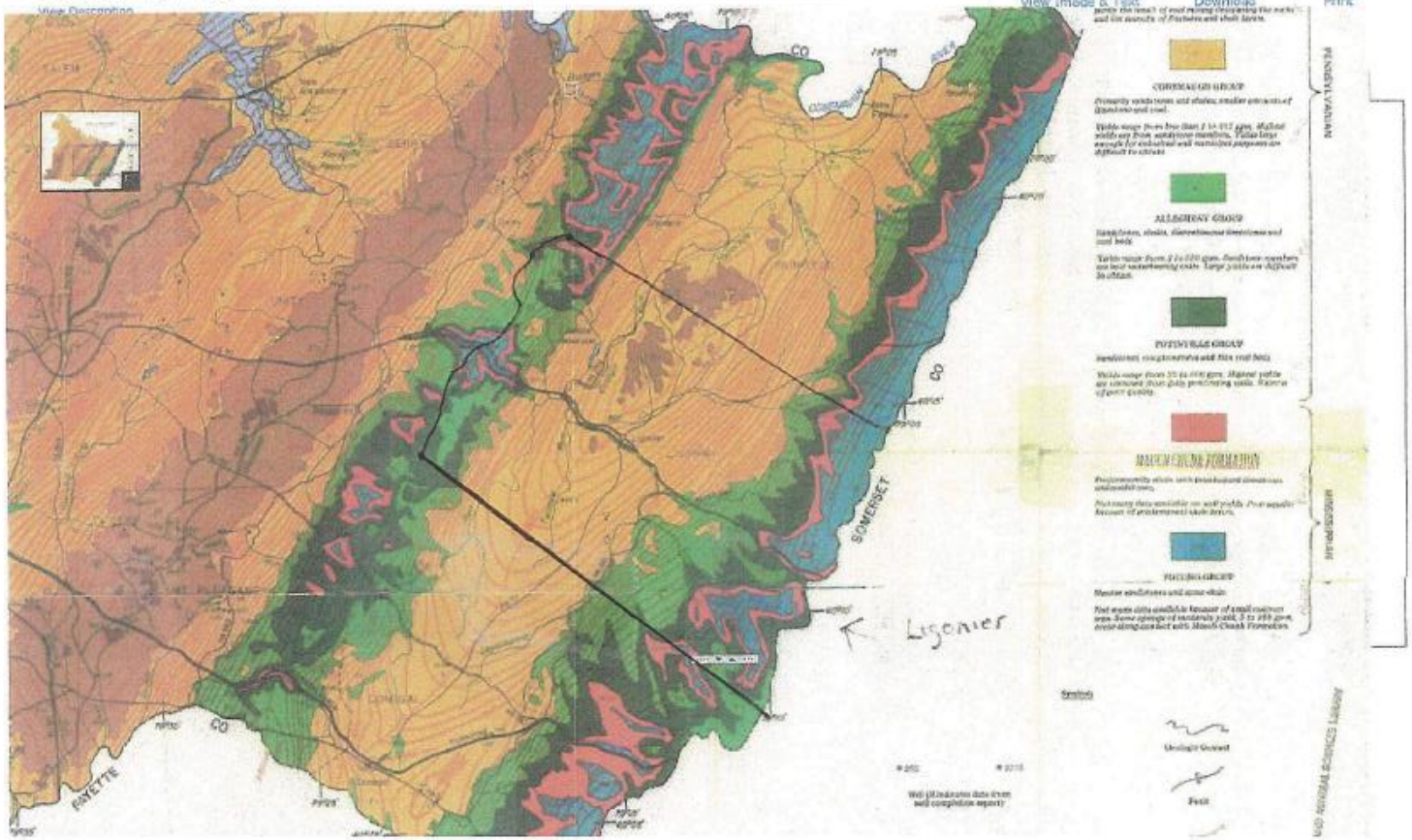


map color	rock formation group	contents	yields
Brown	Monongahela Group	Massive tin-bedded limestones, variable shales, discontinuous sandstones and coal beds. Low yields partly the result of coal mining dewatering the rocks and the scarcity of the of fractures and shale layers.	Less than 1 to 15 gpm
Orange	Conemaugh Group	Primarily sandstone & shale with smaller amounts of limestone and coal. **Highest yields are from sandstone members.** Yields large enough for industrial and municipal purposes are difficult to obtain	Less than 1 to 357 gpm
Green	Allegheny Group	Sandstone, shales, discontinuous limestone and coal beds. **Sandstone members are best water bearing units.** Large yields are difficult to obtain	2 to 550 gpm
Dark Green	Pottsville Group	Sandstone, conglomerates, thin layers of coal. Highest yields are obtained from fully penetrating wells. Water is of poor quality	20 to 500 gpm
Pink	Mauch Chunk Formation	Predominately shale with interbedded limestones and sandstones. Not many data available. Poor aquifer because of predominate shale layers	Not available
Blue	Pocono Group	Massive sandstone and some shale. Not many data available because of small outcrop area. Some springs of moderate yield occur along contact with Mauch Chunk Formation.	5 to 100 gpm

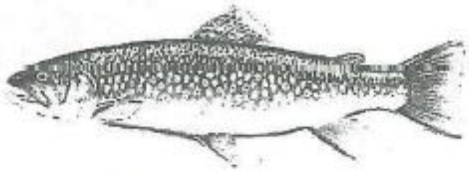
As you can see in the Brown - Monongahela Group formation, once the land is disturbed, water quality reduces. This is reflected in the Wilpen area where coal mining took its toll.

Brook Trout

Salvelinus fontinalis

Species overview: The Brook Trout is Pennsylvania's official state fish. It is technically a char. It is related to the Arctic char of the Far North, the Dolly Varden and bull trouts of the West, and the Lake Trout. The chars live farther north than most other trout and salmon family members. The Brook Trout's original home was northeastern North America, through the Great Lakes, and south along the Appalachian Mountains to Georgia. It is the only stream trout that is native to Pennsylvania. The genus name "*Salvelinus*" is derived from an old name for char. The species name "*fontinalis*" means "of springs." Brook Trout are sometimes called speckled trout, squaretails or just "brookies."

Identification: The Brook Trout's general body color is dark-green. Looking closer, its back is dark olive-green or gray-green, mottled with dark, squiggly or wormlike markings from head to tail. The sides and belly shade lighter, sometimes with green, gray or even lavendar tones, and additional irregular marks. The sides also have scattered red dots, surrounded by bright-blue halos. The belly is usually pale yellow-orange, with a blackish or gray streak down the middle. The pectoral, pelvic and anal fins are pale to bright-orange with a white leading edge followed by a black stripe. There are dark blotches on the dorsal and caudal fins. The Brook Trout's tail fin is less forked than that of most trout and salmon. It's even squarish. In spawning males, colors become more intense and the belly becomes deeporange. At maturity, wild Brook Trout may be from five inches to 18 inches long, according to the availability of food in the home stream.



Habitat: The Brook Trout lives naturally in small, cold, clean streams. It also adapts to ponds and lakes, as well as instream beaver ponds. Brook Trout are found in Pennsylvania as wild populations in the Ohio, Susquehanna, Genesee, Potomac and Delaware River watersheds. Brook Trout are also found throughout the state as hatchery-raised, stocked fish. The habitat of wild Brook Trout has been greatly reduced in Pennsylvania since European settlers arrived, with land-use changes, mining, and warming and silting of streams, and with other pollution and stream habitat degradation. Naturally self-sustaining populations can still be found in limestone spring-fed streams and cold, mountain creeks. Brook Trout can tolerate relatively acidic waters, but not temperatures much over 65 degrees.

They are in the tributaries on the Chestnut Ridge and the Laurel Mountain

the overgrowth around the streams are extremely important in controlling the water temperature

The first step in brook trout conservation is to find where they still swim. A 2006 report titled "Eastern Brook Trout: Status and Threats," from the Eastern Brook Trout Joint Venture (EBTJV), a collaboration of 17 Eastern states and partners to restore native brook trout, stated that, "a significant portion of [Pennsylvania] lacks any data on the presence of brook trout."

But the Pennsylvania Fish and Boat Commission has made progress surveying for brook trout over the past five years.

"We're working with universities and cooperators to look at previously unassessed waters to see if they support wild brook trout," said Fish and Boat Commission coldwater unit leader, Tom Greene. "This effort is prompted by concerns about development of the Marcellus gas resource in some remote regions where brook trout might be present, and there remain other stresses like spreading urbanization and road construction. Our teams are covering 500-600 waters per year. In over half we are finding some wild trout, and the majority are brook trout."

"Their vigorous approach to stream assessment is the shining star in the commission's cap. They are really pushing it," said Ken Undercoffer, a board member of the Pennsylvania Council of Trout Unlimited. A three-time former council president, Undercoffer of Clearfield is Pennsylvania's representative to EBTJV.

Most remaining brook trout haunts are clustered in the northcentral high plateaus, often on state forests or game lands. Some watersheds in southwestern Pennsylvania continue to support the species, especially on Laurel and Chestnut ridges.

Greene's teams are keeping track of new brook trout waters they find.

"Our reproducing trout waters list is updated every time there is commission action; generally that's quarterly," he said.

But the presence of some brook trout does not mean the population is at its highest potential. According to the EBTJV report, populations are classified "Reduced" in 18 percent of sub-watersheds known to harbor the fish. And that's the good news. Populations in 78 percent of sub-watersheds are "Greatly Reduced."

The Fish and Boat Commission manages fishing for wild brook trout under the same general regulations that govern angling for stocked hatchery fish. Undercoffer believes brook trout could do better if angling for those wild fish was regulated differently.

"Just look at Maryland," he said. "They have far fewer brook trout waters but they identify those streams and set up regulations to protect their populations -- smaller creel limits, and no minimum size -- which tends to protect the bigger, reproductively successful fish."

Pennsylvania anglers have been fishing over hatchery fish for so long, said Undercoffer, "they think that's all there is. Most anglers have no conception there's a wild fishery out there. We need to educate people about what we once had and what we could have again in some special places."

Undercoffer compliments Fish and Boat's existing Brook Trout Enhancement program, which prohibits brook trout harvest on a few designated streams. But he'd like to see the stricter philosophy widely applied.

Greene, though, believes his agency's less restraining approach is more appropriate for changing trends.

"For a lot of younger fishermen, these wild brook trout are off their radar," Greene said. "We know from surveys that there's no longer the emphasis on harvesting wild trout that there was in the 1960s. Do we want to make things more restrictive and discourage people even more from fishing?

Volume 112 - No. 281 NOVEMBER 15-16, 2014

What's Inside

—Sports—

SVC men's basketball, two away from 1,000 wins, returns strong core, seeks third straight PAC title. Bearcats picked to win PAC, Bearcats selected as runners-up on women's side in pre-season polls. Blairsville football in D6 Class A semifinals against Portage Area. Trinity tops GCC girls for state soccer title. Lady Centurion volleyball team to compete for state title.

See Pages B1-B4

—Features—

Church Directory A-6

Real Estate A-9

Food A-11

Loyalhanna Creek leads in poll for Pennsylvania River of the Year

With just more than a month remaining in the voting, Loyalhanna Creek is leading the voting for the 2015 Pennsylvania River of the Year.

Of the five nominees, the Loyalhanna has garnered 43 percent of the vote, ahead of second-place Lackawanna River, which has garnered 28 percent.

The Ohio River has accumulated 21 percent of the votes, while the Conewango Creek and the Neshaminy Creek and Watershed each have four percent.

To vote, visit www.pariveroftheyear.org. The voting period ends on Dec. 15.

Last year's winner was the Schuylkill River.

The winning applicant in the competition, usually a local watershed or conservation group, receives a $10,000 Leadership Grant to help fund River of the Year activities.

The award, which dates back to 1983, is awarded by the Pennsylvania Department of Conservation and Natural Resources (DCNR). The recognition is done to raise awareness of the important recreational, ecological and historical resources associated with the state's rivers and streams.

According to the website, the Loyalhanna Creek offers an exceptional array of fishing opportunities, including a 1.5-mile delayed harvest section plentiful with trout, as well as lower reaches rich with pike, muskie and bass.

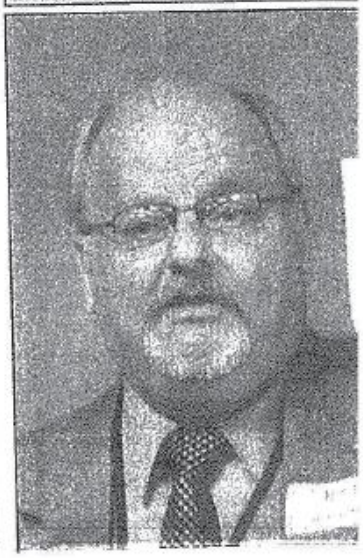
Over recent decades, because of the investment of millions of dollars to fund projects that treat abandoned mine drainage, repair eroding steak banks, protect riparian areas, and increase public awareness and recreation opportunities, what once was an orange, shallow stream that passed by mills and factories is now a cleaner, vibrant passageway through the local region.

New Latrobe creative writing organization to offer workshops, contest

Write Local has teamed up with Latrobe Art Center and Latrobe Community Revitalization Program (LCRP) to offer writing workshops to students in grades 3-12 during its November "Write My Neighborhood" series. The workshops lead up to an all-ages writing contest centered on the theme "Home."

Participants can register for workshops online at www.fac-

Airport publ



Latrobe Municipal Authority

Welcome to the official web site for the Latrobe Municipal Authority in Latrobe, Pennsylvania. Since its inception in 1942, the Authority currently provides water and wastewater services to the Greater Latrobe area in Westmoreland County.

The water treatment system has a filtration capacity of 6.0 million gallons per day and the wastewater plant is rated to treat 5.0 million gallons per day

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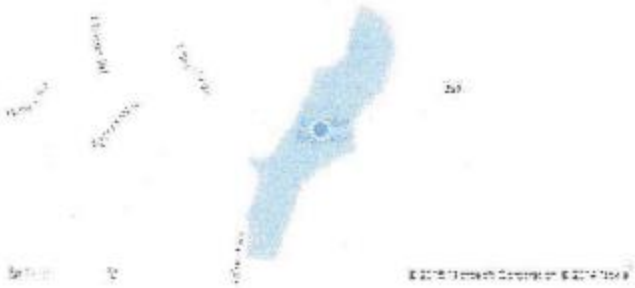
Map of Latrobe Reservoir, Pennsylvania



Latrobe Reservoir, Pennsylvania Fishing Report ...

Daily **Latrobe Reservoir** fishing report from **Fishingnotes.com** including weather, water temperature, fishing tips and more.

Latrobe Reservoir, Pennsylvania | Reviews, Activities ...

27,000,000 RESULTS Any time

Ligonier Reservoir, Pennsylvania Fishing Report ...

Daily **Ligonier Reservoir** fishing report from **Fishingnotes.com** including weather, water temperature, fishing tips and more.

Ligonier Reservoir, Pennsylvania | Reviews, Activities ...

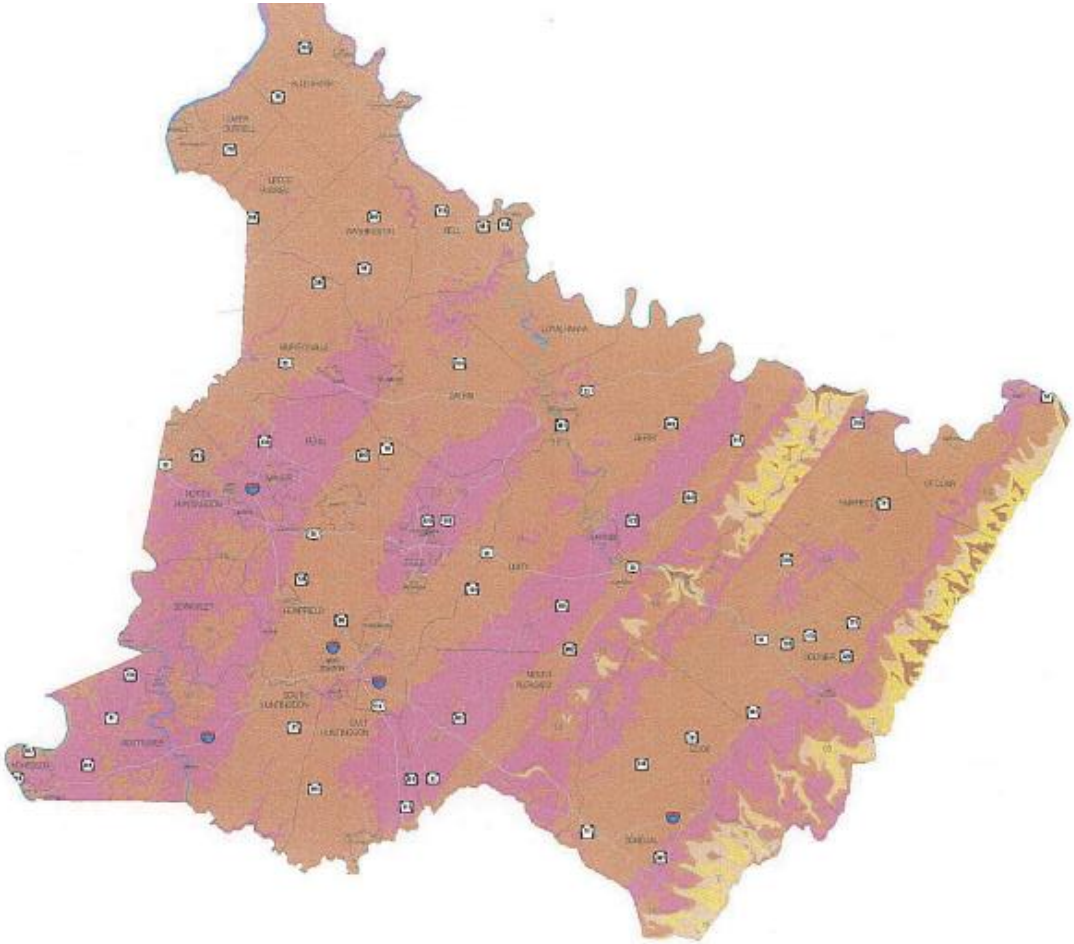
Ligonier Reservoir is located in **Westmoreland county, Pennsylvania**. Find dining and lodging options near **Ligonier Reservoir**. Check out local things to do such as ...

Map of Ligonier Reservoir, Pennsylvania

154 Reservoir, Ligonier Twp, PA 15658 (MLS# 1039103 ...

Learn more about 154 **Reservoir**, **Ligonier** Twp, **Pennsylvania** 15658 (MLS# 1039103) and other real estate for sale on **PittsburghMoves.com** - Coldwell Banker Real Estate ...

Ligonier Twp. Municipal Authority, PA *



WESTMORELAND COUNTY

April 2008

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Stream or river

1, Dikes (if present)

Municipal boundary

web site: www.dcnr.state.pa.us/topogeo/groundwater/rocktypes.aspx

ROCK TYPES *See complete description. Not all rock types in the legend may be present on the map.

- 7, Red sedimentary rocks*
- 14, Sandstone*
- 16, Sandstone, conglomerate
- 18, Mixture of rock types 1*
- 19, Mixture of rock types 2*

Rock Types of Pennsylvania

Rocks are divided into three basic groups: sedimentary, igneous, and metamorphic. Sedimentary rocks, the most common rocks at the surface in Pennsylvania, form by either the deposition of individual grains that have eroded from older rocks and have been transported by water or wind (clastic sedimentary rocks); or by the precipitation of dissolved minerals from water or organic deposition (nonclastic sedimentary rocks). The naming of sedimentary rocks is based mostly on grain size (clastic) and/or chemical composition (nonclastic). Common clastic sedimentary rocks in Pennsylvania are conglomerate, sandstone, siltstone, claystone, and shale. Common nonclastic sedimentary rocks are limestone and dolomite.

Igneous rocks are formed by the cooling of molten material, either lava (above ground) or magma (underground). They are classified by what minerals they contain and the grain size of the minerals (coarse enough to be seen with the naked eye, or too fine to be seen). Rocks containing the same minerals, but having different grain sizes have different names. Likewise, igneous rocks of the same grain size, but of different mineral composition will have different names. Pennsylvania has had a variety of igneous rocks; however, most of these have undergone metamorphism. On the maps, they are classified simply as dark or light-colored. The color is a reflection of the minerals present in the rock.

Metamorphic rocks are those formed by altering igneous, sedimentary, or other metamorphic rocks by heat and/or pressure. The heat and pressure cause changes in the minerals present, as well as rearranging the minerals in the rocks. Metamorphic rock names are based on grain size, organization of minerals into layers (foliation), and composition. Pennsylvania has gneiss, schist, phyllite, slate, marble, and quartzite.

Crystalline rocks refers to either igneous or metamorphic rocks.

Much more information about the rocks in general, rocks of Pennsylvania, and the minerals of which they are composed, can be found in our publication ES1: Rocks and Minerals of Pennsylvania. The 1982 publication, EG1, Engineering characteristics of the rocks of Pennsylvania by A. R. Geyer and J. P. Wilshusen, (300 p.) also provides information on the rocks of Pennsylvania by geologic unit.

Map 63 delineated 19 different rock types or groups of rock types for Pennsylvania. The county maps show these rock types. The following descriptions are modified from Map 63. The numbers in the list match the rock type numbers on the maps. A glossary follows.

1. Dark-colored igneous and metamorphic (crystalline) rocks. Includes dark-colored gneiss and diabase (and kimberlite, if it is shown on the map). Also includes all dikes, thereby lumping pegmatite, a light-colored rock that is limited in extent, with the much more common diabase dikes.
2. Light-colored metamorphic (crystalline) rocks. Includes light-colored gneiss and pegmatite.
3. Schist, including minor amounts of gneiss, quartzite, and phyllite.
4. Marble.
5. Quartzite.
6. Unconsolidated sediments. Includes coastal-plain deposits, Delaware River gravel, and sand at Presque Isle. Does not include glacial deposits.
7. Red sedimentary rocks. Includes sandstone, siltstone, shale, and some conglomerate. Some non-red rocks may be included.
8. Limestone.
9. Dolomite.
10. Mixed limestone and dolomite.
11. Limestone or dolomite mixed with sandstone, shale, or chert.
12. Slate.
13. Shale and siltstone.
14. Sandstone and minor amounts of shale or siltstone.
15. Shale or siltstone, and minor amounts of sandstone.
16. Sandstone and/or conglomerate.

17. Mixed sandstone and conglomerate, with coal, shale, and siltstone. Includes anthracite seams in eastern Pennsylvania.
18. Mixture of sandstone, siltstone, shale, claystone, limestone, and coal.
19. Mixture of siltstone, shale, sandstone, limestone, claystone, and coal. Includes the most economically important bituminous coal seams.

Glossary

Calcareous - Contains calcium carbonate (calcite) or calcium-magnesium carbonate (dolomite). Will fizz when dilute hydrochloric acid (HCl) is placed on a sample. Calcite will fizz vigorously. Dolomite will fizz gently. Limestone, dolomite, and marble are common calcareous rocks. Other rocks may also be calcareous.

Claystone - A sedimentary rock in which more than 50 percent of the particles are less than 0.00015 inches in diameter. Grains are too small to be visible as individuals, giving the rock a smooth appearance. It looks like clay that has been hardened into rock. It does not have the fine layering of shale.

Coal - A black, relatively lightweight rock composed of accumulations of plant matter converted by pressure and heat.

Conglomerate - A sedimentary rock with rounded pebbles that are greater than 0.08 inches in diameter. It has an appearance somewhat like concrete, with pebbles cemented together by finer-grained material.

Dolomite - A sedimentary rock composed of magnesium (Mg), calcium (Ca) and carbonate (CO_3). Also called dolostone. It reacts to dilute hydrochloric acid, but not as vigorously as will limestone or marble. Surfaces that have been powdered by scratching (or by scraping during drilling) may react more readily. Dolomite is generally gray or tan in color. Grain size ranges from small, visible crystals to grains that are too small to see individually.

Dike - A tabular body of igneous rock that cuts across the bedding or foliation of the surrounding rock. Most dikes in Pennsylvania are composed of diabase, a dark-colored igneous rock.

Foliated - A property of metamorphic rocks where a planar feature exists, either due to the orientation of platy grains, or the separation of different minerals into bands. Foliated rocks include slate, phyllite, schist, and gneiss.

Gneiss - A metamorphic rock characterized by alternating light and dark-colored bands. Color is determined by the minerals present in each layer. One color usually predominates, such that a gneiss can be categorized as either a light crystalline rock or a dark crystalline rock. The mineral grains in a gneiss are large enough to be easily visible. Most of the grains are relatively equidimensional, meaning that they are more like little chunks than like plates or sheets.

Limestone - A sedimentary rock composed of calcium (Ca) and carbonate (CO_3). Its most obvious defining characteristic is that it reacts vigorously to dilute hydrochloric acid. Limestone is generally gray or tan in color, although they can be dark gray or black. Grain size ranges from small, visible crystals to grains that are too small to see individually. Limestone may contain fragments of fossil shells.

Marble - Metamorphosed limestone and dolomite. Marble is composed of large crystals of calcite or dolomite that sparkle when light reflects off of their flat surfaces. In Pennsylvania, marble is white or very light gray, and generally contains flakes of golden-brown or white mica. It reacts to dilute hydrochloric acid. Marble can be scratched by a knife.

Mica - A series of minerals that form thin sheets. Mica is found as layers in schist, phyllite, and some gneisses, and as flakes in marble and some sandstones. Several varieties that are common in Pennsylvania are white (usually appears silver-gray), black, or golden-brown. Mica has a glassy or metallic appearance.

Phyllite - A fine-to-medium grained, layered metamorphic rock. Mica grains are just large enough to be visible. Rock surfaces are smooth and have a satiny sheen. Layers tend to be fairly planar, and the rock splits easily along them. The most common colors are silvery gray or greenish gray.

Quartzite - A very hard rock composed almost entirely of quartz. In the metamorphic variety, quartz grains are interlocked like puzzle pieces. Grains are usually relatively large. In the sedimentary variety, sand-sized quartz grains are cemented together by fine-grained material of the same composition. Quartzite is generally white or beige. Quartzite is harder than steel and cannot be scratched by a knife.

Sandstone - A sedimentary rock in which more than 50 percent of its particles are sand-sized (0.002–0.08 inches in diameter). It looks like sand held together by cement. Sandstones can be found in a variety of shades of white, red, green, and gray.

Schist - A metamorphic rock dominated by coarse-grained mica arranged in layers. The layers tend to be wavy or bumpy, and separated by granular layers usually dominated by quartz. Large crystals of other minerals are common. One of these other minerals is garnet – dark red, rounded, pinhead- to pea-sized or larger. Rock surfaces have a shiny, sparkly, or sequined appearance. Schist usually appears silver-gray due to the abundant mica.

Shale - A finely layered sedimentary rock similar in grain size to claystone, but that breaks out into thin sheets or plates parallel to the layers. Shale is found in many shades of gray, black, red, and green.

Siltstone - A sedimentary rock in which more than 50 percent of its particles are silt-size (0.00015–0.002 inches in diameter). Visually indistinguishable from shale and claystone, it feels slightly gritty between the teeth.

Slate - A very fine-grained layered metamorphic rock that splits into thin sheets. Grains are too small to be individually visible, giving the rock a smooth appearance. Surfaces are dull and tend to be absolutely flat. The most common colors are black and shades of gray. Slate is commonly used for roofing and pavers. In Pennsylvania, slate is found ONLY in the southeastern quarter of the state. The most important locations are in Lehigh, Northampton, York, and Lancaster Counties. Lesser occurrences are in Adams, Berks, Carbon, Dauphin, and Lebanon Counties.

The Ligonier Echo THURSDAY, JANU

Trout Unlimited offers youth program for 11th year

Group opens fly-fishing instruction to adults

BY PETER TURCIK

February is not well known as a big month for fly-fishing in the Ligonier Valley. But as the winter cold closes up the local waterways, Forbes Trail Trout Unlimited works to open young minds to the sport of fly-fishing in anticipation of the spring.

Beginning Feb. 5, students, age 12 to 16, will learn the basics of fly-fishing, and move from the classroom to the water.

New this year, FTTU will include a limited number of adults in the classes. Program director Drew Banas said the idea came through a fortunate error. Originally, the kids sat at tables arranged in a U-shape. Then one day the tables were split up, and parents sat with their children and began taking an interest in fly-fishing.

"It worked out so well. Moms and dads were learning right alongside their kids," Banas said. "The program is going on to its 11th year. Last year we talked about adding adults to the program."

According to Banas, a retired man who received a fly rod and reel as a retirement gift approached him, asking if he could join the class and learn how to use the outfit.

"He was the inaugural oldster that we had in our program," Banas said. "It worked very, very, very well, so we are opening the program up to a

Jake Smithley of Ligonier shows his catch to mentor Drew Banas.

Forbes Trail Trout Unlimited President Leo Vensel shows knot-tying technique to Sarah Lenhart of Ligonier (left) and Spencer Hudson of Derry.

limited number of adults to get them involved."

Local experts will address topics such as stream ecology, trout behavior, casting, fishing techniques and knot tying. Additionally, at every session, participants will learn to tie a different fly pattern. In the spring, there will be field trips to local streams. Participants will collect and identify aquatic insects, as well as the 20 species of fish that inhabit the upper Loyalhanna watershed in an electrofishing demonstration.

The program will run through the end of May, but will conclude with a trip to fish for steelhead trout in a Lake Erie tributary.

Though many participants have enjoyed the sport and continued to pursue it after the program's conclusion, one student went further than the others. Derek Edwards of Greensburg was in the inaugural program. Already an avid fisherman, Edwards learned about the class and saw an opportunity to try something new.

"TU's program was my very first experience with fly-fishing. I was hooked the first night we started tying. It was awesome being able to turn feathers and that kind of stuff into something you could catch fish with," Edwards said. "It was something different. It was a little more challenging. It was a way for me to express myself. Fly-fishing can be as simple as you want it to be, and you can also make it as complex as you want it to be. It's something I saw I could do for a long time."

SUBMITTED

Mentor Steve Presock shares fly-tying skill with his nephew, Jacob Bradshaw.

Edwards, now 20, is a junior at West Virginia University, where he founded a fly-fishing club and has been the president since its inception. He has also competed in the Junior National Fly-Fishing Championship, and now his follows in FTTU's footsteps, teaching young people in West Virginia how to fly-fish. His work will be featured in an upcoming episode of the television show "Fly Rod Chronicles with Curtis Fleming," scheduled to air later this year.

"Trout Unlimited gave me a great start. I've seen just how much it has given me, and where it has taken me. It's a chance for me to share what I know," Edwards said. "It's a way to build my generation in fly-fishing, because it's not very strong. There is a big age gap in the programs."

Forbes Trail Trout Unlimited's Youth Fly-Fishing Program begins Feb. 5 at the Loyalhanna Watershed Association building. For more information, contact Drew Banas at 724-238-3290. An enrollment form and a schedule of events can be obtained on FTTU's website at www.forbestrailtu.org. Enrollment is limited to the first 15 individuals.

Peter Turcik is a contributing writer for Trib Total Media.

FTTU to again host Youth Conservation & Fly Fishing Program

Spencer Hudson gets some assistance from Forbes Trail Chapter of Trout Unlimited (FTTU) President Leo Vensel.

Jake Smithley of Ligonier gets some help from Forbes Trail Chapter of Trout Unlimited (FTTU) Youth Conservation and Fly Fishing Program founder and mentor Drew Banas.

Attention area youth: The Forbes Trail Chapter of Trout Unlimited (FTTU) is now accepting applications for its 11th annual Youth Conservation and Fly Fishing program.

This program was established in 2005 to encourage awareness of coldwater conservation and other related environmental issues, as well as to teach area youth the enjoyment of fly fishing.

Boys and girls between the ages of 12 and 16 years are welcome regardless of experience level.

Both novices and experienced individuals are welcome. This is a terrific way to learn to fly fish or to further develop existing skills.

In 2011, FTTU was voted by Trout Unlimited as having the top youth program in the state of Pennsylvania.

Meetings will take place on a twice-a-month basis, beginning on Feb. 5 and ending in October with a fishing trip to a Lake Erie tributary for steelhead.

For the first several months, meetings will be held at the Loyalhanna Watershed Association office in Ligonier. Local experts will address topics such as stream ecology, trout behavior, casting, fishing techniques and knot tying. Additionally, at every session, participants will learn to tie a different fly pattern.

In the spring, there will be field trips to local streams. Participants will collect and identify macroinvertebrates (aquatic insects) since this is a major food source of trout. In addition, an electro-fishing outing will be held so that the 20 species of fish that inhabit the upper Loyalhanna watershed can be identified. Attendees will also learn fly fishing techniques that are effective at local streams.

Each participant will receive a Trout Unlimited Youth Membership and will have access to fly-tying and fly fishing equipment for the duration of the program. A small donation of $20 is requested to help offset the costs of fly-tying materials.

A limited number of adults

(See FTTU on Page 3)

Jacob Downey of Latrobe caught this steelhead at Elk Creek. See more photos on Page A12.

Forbes Trail Chapter of Trout Unlimited (FTTU) President Leo Vensel (center) shows a knot-tying technique to Sarah Lenhart of Ligonier and Spencer Hudson of Derry.

obe Bulletin

WEDNESDAY, MARCH 11, 2015 50¢ Newsstand

r's state budget proposal 'promising' for GLSD

ULICNE
f Writer

Wolf's recent state budg-
3,000 funding boost for
strict (GLSD), but with
lan still undecided, the
t just yet, according to
ministrator Dan Watson.
mbers we're looking to
ooking very promising,
re's probably a lot more
state level, so we're not
n time," Watson said at
d meeting.

the state budget propos-
508,000 for GLSD, the
conservatively last year
tions for state funding,
pact of the governor's
$939,000 increase over
nt for state funding last

d that the governor also
r measures in place to
l funding, which could
ther districts with some

out how costly it is to

Greater Latrobe when students choose to go to charter schools," Watson said. "Wolf is talking about putting a cap on that."

According to the Pennsylvania Department of Education website, the governor's cyber charter school funding reform plan would save Pennsylvania school districts an estimated $162 million.

"The governor's budget looks very favorable to education," Watson said.

The school board's agenda for its next regular meeting tentatively includes votes to approve:

• Authorizing GLSD to provide a $15,000 match to be used for a Latrobe-GLSD Parks and Recreation application for a Pennsylvania Department of Conservation and Natural Resources (DCNR) grant to renovate the St. Clair Park property owned by the district;

• A five-year athletic trainer contract with Excela Health;

• Accepting a $500 gift from Commercial Bank & Trust of PA for the School Readiness Transition Plan;

• The Westmoreland County Student Assistance Program agreement for 2015-16;

• Supplemental contracts between GLSD and Adelphoi Village Inc., including a business associate agreement and a purchase of service agreement;

(See Governor's on Page 3)

orhood Watch

Photo by Ernie Sistek

an Gerald Baldonieri Sr., Latrobe
President Susan Leonard and Vice

Court to weigh fate of state school funds lawsuit

HARRISBURG, Pa. (AP) — A lawsuit that claims Pennsylvania doesn't provide sufficient funding for public schools is about to face a major hurdle in the courts.

Commonwealth Court on Wednesday will consider whether the case should continue. It's been filed to force lawmakers and the governor to pump more money into education.

The school districts and others who filed the lawsuit argue

Ligonier Township supervisors pass on fracking moratorium

BY JENNIFER SOPKO
For The Bulletin

Supervisor Tim Komar stood alone among his fellow officials Tuesday night as he made a motion to enforce a moratorium on all gas well fracking in Ligonier Township.

Loud cheers from the audience quickly turned to cries of dismay after Komar's motion died for a lack of second from any of the township's four other supervisors.

Oil and gas regulations in the township's proposed new zoning ordinance have been the primary bone of contention among citizens worried about the possible impact of Marcellus shale natural gas extraction in the Ligonier Valley.

Komar suggested freezing all unconventional drilling operations until the township can scientifically prove whether or not hydraulic fracking on the Nelson property along Route 259 affected the private water source of a home about 4,000 feet away from the site that lies outside of the Pennsylvania Department of Environmental Protection's (DEP) mandatory water testing zone.

He said he has done some research on the issue over the past month, since a public meeting held at the Ligonier Valley High School to discuss the proposed zoning ordinance and map.

"In the information we got that night at the high school it was documented that water wells have been affected as far away as 5,000 feet. This concerns me," Komar said. "There's a lot of truth to a lot of what everybody says."

Komar was correct in stating his view might be an unpopular one among his fellow board members.

Chairman Wade Thomas told reporters after the meeting that he did not second Komar's call for a fracking moratorium "because I want to move forward" with the zoning ordinance.

Supervisor Scott Matson said that he hasn't heard of any problems with gas wells in neighboring municipalities including Derry, Fairfield, St. Clair and Cook townships, aside from an impoundment pond leak in Donegal Township.

"I don't think there's any problems besides some busted up roads," he said.

Supervisor Paul Knupp had no comment on why he chose not to support the motion.

Supervisor Bruce Robinson said that Komar's motion came out of nowhere and that the board would listen to people's concerns at the upcoming public hearing on the zoning ordinance and corresponding district map scheduled for 6 p.m. Thursday, March 26, in the Ligonier Valley High School auditorium.

The board approved a list of rules for the hearing, which will be posted on the township's website. All people who wish testify must sign up ahead of time, listing their first name, last name and address on the sign-up sheet, which will be available at the township municipal building no later than three days before the hearing and also at

(See Ligonier on Page 3)

Health

Report of David O. Carpenter, MD

[illegible]or Health and the Environment, University at Albany

Concerning Zoning and Land Use Request to Allow Hydraulic Fracturing

in 90+ % of Middlesex Township

14 January 2015

As a public health physician and former Dean of the School of Public Health at the University at Albany, my research and activities are focused on attempts to prevent human disease, especially those diseases that are caused by exposure to environmental pollutants. My publications and research studies have investigated human health hazards resulting from exposure to a variety of chemicals as well as radiation. Many of these studies have investigated effects of exposure to organic chemicals, both those that are persistent in the environment and those that are more volatile, where inhalation is a major route of exposure. I have extensive experience in the study of the effects of ionizing radiation on human health. I have published more than 380 articles in peer-reviewed scientific journals, and have edited six books and written a number of book chapters on various subjects. In 2014, my colleagues and I published a report on the air concentrations of volatile organic compounds in five states, including Pennsylvania, near unconventional oil and gas sites and infrastructure, such as compressor stations. It is based on these experiences that I have a basis to comment on the pending case regarding land use and zoning in Middlesex Township. The opinions expressed in this report are stated to a reasonable degree of scientific and professional certainty.

The attorneys for residents, the Clean Air Council and the Delaware Riverkeeper Network, have asked me to review a number of documents, including the risk assessment report prepared by Ms. Birnbaum and maps of the Township. I am very familiar with the scientific literature published from around the country by different scientists, and know well the reports prepared by the New York State Department of Health and the University of Maryland. I have worked on air sampling around unconventional oil and gas sites in five states. On the basis of these experiences and the knowledge gained from the studies that have been conducted at other locations, I conclude that it would be unwise and unsafe to allow development of natural gas resources in over 90% of Middlesex Township, especially locations in close proximity to schools and residences. To do so would impose significant adverse health effects upon residents of the Township. The justification for this conclusion is summarized below.

Health effects of air pollution resulting from hydro-fracturing (fracking) activities

Every investigation that has been done has reported that the levels of volatile organic compounds (VOCs) are elevated around fracking sites. The major compound is methane, which is the primary component of natural gas. But other VOCs are found along with the methane, including hexane, benzene, ethylbenzene, pentane, xylene and many more. Of these, the most dangerous is benzene, which is a known human carcinogen. As with most carcinogens, benzene will not result in elevations in rates of cancer immediately, but rather increased cancer rates will occur with a latency of 5-20 years. The cancers of greatest concern are leukemia, lymphoma and liver cancer.

In addition to cancer, VOCs in air will be inhaled by all residents living near the sites, and this is known to cause effects on the respiratory system in individuals living within 1 km of a gas well (Rabinowitz et al., 2015). Individuals living near unconventional oil and gas sites have reported continuous sore throats, increased coughs, nosebleeds and asthma attacks (Earthworks, 2012). Studies of workers in occupational settings have demonstrated that chronic exposure to VOCs results in impaired memory, headaches and other indications of reduced mental ability (Verberk et al., 2012), and similar symptoms have been reported among individuals living near to fracking sites (Earthworks, 2012). There are also widely reported effects on the skin, with the development of rashes and hair loss (Rabinowitz et al., 2015).

Another air pollutant coming from natural gas is hydrogen sulfide, the substance that smells like rotten eggs (Eapi et al., 2014; Macey et al., 2014). Hydrogen sulfide is produced whenever organic material containing sulfur degrades, and this is the basic process of natural gas generation from primeval plant life. Our study of air pollutants near unconventional oil and gas sites in five states found elevated hydrogen sulfide near well pads, rigs, separators and especially near discharge canals (Macey et al., 2014). Hydrogen sulfide causes headaches and respiratory irritation and also interacts with water in the respiratory system and eyes to form a weak acid, which is irritating (Birnbaum, 2014). Exposure to concentrations of hydrogen sulfide greater than 4 $\mu g/m^3$ has been associated with increased rates of spontaneous abortion (Hemminki and Niemi, 1982).

In addition to wells, there are particular problems associated with dehydration units, condensate tanks and compressor stations. Because Middlesex Township is a region with wet gas, dehydration units will have to be used. Dehydration units are known to generate up to 40% of air pollutants at production sites (Field et al., 2014).

Other air pollutants are products of above-ground activity around fracking sites. One of the most concerning pollutants is formaldehyde, another known human carcinogen. Formaldehyde is a product of incomplete combustion and is formed especially from truck traffic and natural gas combustion at compressor stations. It is also formed by the reaction that occurs when methane is exposed to sunlight. In our study, formaldehyde was found to be particularly elevated near

compressor stations in Pennsylvania and Arkansas (Macey et al., 2014). Our sampling showed that in Pennsylvania formaldehyde near compressor stations can reach concentrations that exceed federal standards and the 1/10,000 cancer risk level. The frequent nosebleeds reported in individuals living near fracking sites is likely due to formaldehyde, which is embalming fluid, pickling the epithelium in the nose. Compressor stations often burn unrefined natural gas, and will release other hazardous substances such as carbon monoxides and oxides of sulfur and nitrogen as well as formaldehyde (Birnbaum, 2014; Field et al., 2014). The oxides of nitrogen interact with sunlight and VOCs like methane to form ozone, which is also a respiratory toxicant.

Other dangerous categories of air pollutants include polyaromatic hydrocarbons (PAHs) which are often found on particulate air pollution. PAHs are a variety of different chemicals containing only carbon and hydrogen, some of which are known human carcinogens. These arise around fracking sites primarily because of combustion, often coming from trucks and compressors. Particulate air pollution comes in various sizes, ranging from visible soot that is usually trapped in the respiratory tract and removed, down to small particles that can penetrate deep into the lung and cause lung cancer (Hamra et al., 2014), respiratory diseases, especially in children (Sheffield et al., 2011), and heart disease (Ito et al., 2011). A major source of small particulates is diesel exhaust. Birnbaum (2014) reported that operating a typical well pad will involve 13,000 truck round trips, which will generate an enormous amount of particulates containing PAHs.

Studies from Colorado have reported elevated rates of some forms of birth defects (congenital heart disease and neurotube defects) and low birth weight and premature birth in infants born to mothers living within a 10-mile radius of fracking sites (McKenzie et al., 2014). Both the birth defects and low birth weight rates decreased with distance from the wells beyond the 10-mile radius. Studies from Pennsylvania show similar effects on birth weight. Hill (2014) found increased rates of low birth weight and lower average birth weight in infants born to women who lived within 2.5 km of a fracking well as compared to women living further than 2.5 km. Infants born to mothers living closer than 2.5 km from the well pads were more likely to be small for gestational age and have poorer APGAR scores. It should be noted that substances that cause cancer often are also found to cause birth defects. There is strong evidence that low exposure to benzene is associated with increased rates of leukemia (Glass et al., 2003).

Animals, whether farm animals or pets, will be subject to the same—and probably more intense—exposures than humans. Animals will develop the same diseases found in humans as a result of exposure. Bamberger and Oswald (2012) have documented reproductive, neurological, gastrointestinal and other adverse health effects in wild and domestic animals near fracking sites. Bechtel et al. (2009) reported altered immune function in beef cattle resulting from air emissions of VOCs and hydrogen sulfide from oil and gas facilities.

A final air pollutant is silica or silicon dioxide, arising from the high pressure injection of sand into the well to open the shale. Workers at fracking sites have been found to be exposed to ten or more times the OSHA standard for silica (Esswein et al., 2013). While this is an issue of

considerable importance to those working at fracking wells, the exposure to nearby residents will be limited primarily to those who are very close to the site. Silica causes a disease known as silicosis, which results in fibrosis of the lung and is often fatal.

Health effects of fracking activities on vulnerable populations

A major concern is the proximity of proposed fracking sites to schools (see attached map). Increases in birth defects and adverse impacts on birth weight have been detected within 10 miles (McKenzie et al., 2004) and 2.5 km (Hill, 2014) of fracking sites. All of the four schools in Middlesex Township are at closer distances than these. In addition, there is the potential for a well pad will be located within just 910 feet from the Centennial School. Children are more vulnerable than adults to diseases resulting from many different environmental exposures (Sly and Carpenter, 2012) because their bodies are growing, which means they eat, drink and breathe more than adults per unit body weight. This is true whether the child is near a fracking site at home or at school. Because children are more concentrated in schools, the proximity of fracking sites to schools is of particular concern. Fracking should never be allowed anywhere near to a school. Other vulnerable populations include people with existing asthma or respiratory disease and the very old, who are often infirm and unable to tolerate exposures that would not have the same degree of adverse impact on a younger, healthy adult. The studies mentioned above (McKenzie et al., 2014; Hill, 2014) reporting birth defects, low birth weight and small for gestational age are consistent with the expectation that the fetus is very vulnerable to fracking activities.

Health effects of water pollution resulting from fracking activities

There is clear evidence that unconventional deep shale gas development has caused methane contamination of drinking water in Pennsylvania (Osborn et al., 2011). This poses not only the risk of explosion but also of exposure from both ingestion of methane-contaminated water and inhalation of methane that escapes to air. Ingestion of methane will primarily affect the central nervous system (Verberk et al., 2012), whereas inhalation will alter both the central nervous and respiratory systems (Rabinowitz et al., 2015). Fracking involves injection of many chemicals into the shale at high pressure to facilitate the release of the natural gas. There is widespread concern about contamination of ground water with these chemicals, especially arising from spills, leaks from casings or fractured rock, improper disposal of flow-back water and collapse of pits containing waste water (Rozell and Reaven, 2011; Vengosh et al., 2014). This is a reasonable concern especially for individuals who derive drinking water from wells. While many residents of Middlesex Township are on municipal water, conventional drinking water treatment facilities are often not capable of removing all chemicals. This is a special concern since not all of the chemicals used are known as they are proprietary. Colburn et al. (2011) have identified many of these chemicals and have documented toxic actions on many different organ functions. For example, of the 353 chemicals with Chemical Abstract Service numbers known to be used in fracking, more than 80% of them have skin, eye and sensory organ as well as

respiratory effects. They report that about 37% of the chemicals identified are volatile. Other adverse effects were documented for some of the chemicals and for VOCs on the gastrointestinal system, brain and nervous system, immune system, kidney, cardiovascular system, as well as creating increased cancer risks. Many chemicals and VOCs are also mutagenic and are endocrine disruptors, as well as having adverse ecological effects.

Health effects of radioactive substances

The Marcellus Shale contains high concentrations of naturally-occurring radioactive elements, including radium, thorium and uranium (USGS, 2011). While thorium and uranium are not very water soluble, radium is, and the concentration of radium in flow-back water is often high. Conventional drinking water treatment plants are not equipped to remove most radioactive substances, raising the risk of radioactivity in the municipal water supply. In addition, there is the problem of what to do with the flow-back water that contains chemicals as well as radioactivity. In some circumstances the flow-back water is injected deep into the earth, which may solve the radioactivity problem but has been found to cause earthquakes. More often, the flow-back water is stored on pond impoundments, which may leak or overflow, contaminating the surrounding environment. Because the flow-back water usually contains high concentrations of salt it has even been used on roads in Pennsylvania for ice control in the winter, which will clearly spread radioactivity. If ingested, radium will deposit in the bones and increase risk of bone cancer and leukemia (Canu et al., 2011).

Radium decays to radon gas, which has a half-life of 3.8 days, and there certainly will be radon in the natural gas coming from wells which will be inhaled by nearby residents. While the concentration of radon is unlikely to be high, radon is known to cause lung cancer in humans and if inhaled, will decay to other heavy metal isotopes that will be deposited in the lung.

Health effects resulting from noise and light contamination

Fracking activities occur 24/7. Fracking operations are accompanied by loud noise and constant light when the wells are being drilled and by heavy truck traffic during operation (Birnbaum, 2014; Concerned Health Professionals, 2014; University of Maryland, 2014). The setback standard in Pennsylvania is only 500 feet from the well to an existing building. Therefore, a person living near to a fracking well during the drilling and fracking phases will be subjected to almost constant noise day and night, and light pollution all night long. These factors will cause stress and loss of sleep. The result will be irritability, reduced immune system function and excessive fatigue that will interfere with normal functioning.

Dangers arising from emergency events at sites with unconventional oil and gas operations

It is essential to anticipate that unconventional deep shale gas development will be associated with unintended events that pose significant danger to local residents, including explosions, spills, leaks, fires and the collapse of holding ponds. Such incidents have occurred in areas that

already allow fracking (Birnbaum, 2014). If fracking is to be allowed in residential, institutional or commercial neighborhoods there must at least be detailed planning for dealing with these emergencies, including evacuation of residents as well as workers. This necessitates knowledge in advance of all individuals living, working and attending school in the area near each well. In Monroe County, Ohio, evacuation was required of all individuals within one and a half mile of a well accident (Monroe County Emergency Management, 2014). Personal protective equipment must also be available, especially for protection from exposures to formaldehyde, hydrogen sulfide and benzene.

Conclusions

For all of these reasons I conclude that a zoning ordinance that allows unconventional deep shale gas development to occur in over ninety percent (90%) of Middlesex Township, including in close proximity to schools and residences, is at the present time and with current technology not protective of the public health, safety and welfare. Residents and those who regularly visit the Township for work or school will be vulnerable to exposures to chemicals in the air and water. These chemicals will also get in food sources, especially those raised in local farms and gardens, and the exposure will result in increases in rates of cancer, nervous and respiratory system effects, as well as an overall reduction in the quality of life. A similar conclusion was reached after extensive review by the New York State Department of Health (2014), which resulted in a decision to prohibit fracking throughout New York State. Much more research is needed to improve the safety of unconventional deep shale gas extraction and perhaps someday technical advances will allow extraction of shale gas in a fashion that does not cause significant threats to human health. However, that is not the case today. For the sake of the health of the residents of Middlesex Township, especially its children, zoning a community so that unconventional deep shale gas development can occur within less than two miles of schools and close to significant residential development poses a particularly significant public health risk.

David O. Carpenter, M.D.

January 14, 2015

An extremely serious issue is fog/smog.

Fog occurs quite regularly in the valleys between the Ridges. The toxic fumes from compressors, processing plants, and truck traffic, along with the Flaring process of Fracking will accumulate and linger in the valleys, thus causing numerous health issues.

Flaring is the process that burns off the chemicals used during the first stages of extraction and any natural gases, including Radon gas. This mixture continues to burn into the atmosphere 24/7, thus raining toxins down on every & anything in the area for anywhere from 1 to 2 weeks.

Google: Images of Marcellous Shale flaring

The top small photo on the left is the same view as the photo above, only this is a close up of the house in the center

Fog is nothing new to this area.

George Washington

writes about the fog

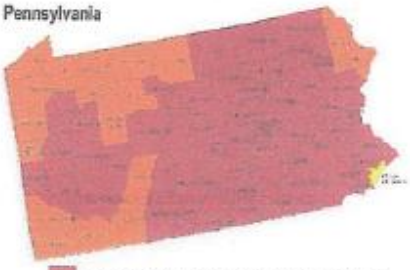
in his account of the

"Friendly Fire"

At Fort Ligonier

Left & Right photos are the same view. Look for the red shed & the ridge in the left photo.

Pennsylvania



Zone 1 Highest Potential (greater than 4 pCi/L)

Zone 2 Moderate Potential (from 2 to 4 pCi/L)

Zone 3 Low Potential (less than 2 pCi/L)

Map of Radon Zones for Pennsylvania

Click on the image for a larger version | What do the colors mean? | Need a full page version? (PDF, 1 page, 20 K, about PDF)

The purpose of this map is to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. This map is not intended to be used to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones. All homes should be tested regardless of geographic location. Learn more

---

About the Map

Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 (IRAA) directed EPA to list and identify areas of the U.S. with the potential for elevated indoor radon levels. EPA's Map of Radon Zones assigns each of the 3,141 counties in the U.S. to one of three zones based on radon potential.

What do the colors mean?

Zone 1 counties have a predicted average indoor radon screening level greater than 4 pCi/L (picocuries per liter) (red zones)	Highest Potential
Zone 2 counties have a predicted average indoor radon screening level between 2 and 4 pCi/L (orange zones)	Moderate Potential
Zone 3 counties have a predicted average indoor radon screening level less than 2 pCi/L (yellow zones)	Low Potential

DEP changes rules for oil, gas sludge at landfills

By Anya Litvak
Pittsburgh Post-Gazette

A change in the rules for landfills accepting fracking fluid sludges could mean higher prices for disposal, and more oil and gas waste going out of state.

The Pennsylvania Department of Environmental Protection, concerned that concentrated frack fluid waste wasn't being adequately diluted at state landfills over the past several years, instituted a new policy starting Jan. 1.

Annual limits for accepting low-level radioactive waste from oil and gas operations were changed to monthly caps to ensure that such waste was properly mixed with non-radioactive waste at a ratio of 1:50.

The DEP told landfills that, after reviewing disposal patterns, it found spikes during certain times of year, which undermined its dilution strategy for such waste.

Landfills that accept this radioactive waste are governed by a formula spelled out in a spreadsheet that takes into consideration the total tonnage and the concentration of radioactive elements.

In a letter to landfills dated Dec. 29, the DEP added another variable to that formula. For all fracking fluid sludges resulting from concentrating flowback water, there is now a multiplier of three embedded into the spreadsheet. So if a landfill accepts 1 ton of sludge, it will count as 3 tons.

"The isotope of concern here is radon," said Kenneth Reisinger, director of DEP's bureau of waste management.

Radon, which in high enough concentrations is a leading cause of lung cancer and is particularly plentiful in Pennsylvania, is a decay product of radium, which is found in oil and gas waste.

The DEP sets its limits for landfills with that in mind. Specifically, it works backwards from a widely accepted recommendation that human exposure to radiation should be below 100 millirems per year and that no more than 25 percent of that should come from any

SEE **LANDFILL**, PAGE C-2

DEP changes the rules for oil sludge at landfills

LANDFILL, FROM C-1

particular source.

So, using a 25 millirem per year threshold for radon, the DEP calculates how much low-level radioactive waste would be acceptable to mix into a landfill so that 1,000 years from now, a person living in house built on that landfill wouldn't exceed the recommended exposure rate.

The immediate impact, however, might be that oil and gas facilities have fewer disposal options in the state, some landfill operators say.

Seneca Landfill in Mars has had no problem not exceeding its annual limit of such waste in prior years, said Ed Vogel, vice president of Vogel Disposal Inc. But the monthly limits and the sludge multiplier may change the equation.

Seneca accepts frack fluid sludge from several wastewater treatment plants. Mr. Vogel said he's already made phone calls to his competitors asking for pricing in the event that he needs to send what he cannot accept to another facility.

Because transportation costs are a large factor in disposal, he said, "For customers, their prices are going to go up probably substantially. It's supply and demand."

DEP data shows hundreds of thousands of tons of frack fluid waste are disposed of at Pennsylvania landfills annually.

The amount appears to have peaked in 2011, when 449,573 tons were slated to enter state landfills, but 2014

> "I believe some landfills will probably meet their monthly allocation which will cause generators to reroute waste to other available facilities."
>
> Kenneth Reisinger
> Director of DEP's bureau of waste management

was in close second. During the first 10 months of the year, 430,317 tons were headed for landfills.

It's not clear yet if the new limits will have the effect of curbing the amount of such waste going into state landfills or if, as suggested by the Pennsylvania Waste Industries Association, there is plenty of capacity at such facilities to handle it.

"I believe some landfills will probably meet their monthly allocation, which will cause generators to reroute waste to other available facilities," Mr. Reisinger said. "But we have almost 50 landfills operating in Pennsylvania."

Of those, just more than a dozen regularly accept low-level radioactive waste from oil and gas operations, he said.

"It may force material out of state, but I think it's premature to conclude that," he said.

Anya Litvak: alitvak@post-gazette.com or 412-263-1455.

PENNSTATE

1855

radon

Top News

The Medical Minute: Radon's link to lung cancer

1/8/15 Each year, radon kills more people than home fires, drowning, falls or drunk driving. It is the number one cause of lung cancer in nonsmokers, taking some 21,000 lives annually.

Does radon cause cancer?

Long-term exposure to radon can lead to . Radon gas in the air breaks down to other radioactive elements (radon progeny). Radon progeny are tiny radioactive particles that can lodge in the lining of the lungs, where they continue to break down into other radioactive elements by releasing radiation. The radiation released in this "radioactive decay" process can damage lung cells and eventually lead to lung cancer

is by far the most common cause of lung cancer in the United States, but radon is the second leading cause. Scientists estimate that about 20,000 lung cancer deaths per year are related to radon.

Exposure to the combination of radon gas and cigarette smoke creates a greater risk for lung cancer than either factor alone. Most radon-related lung cancers occur among smokers. However, radon is also thought to cause a significant number of lung cancer deaths among non-smokers in the United States each year.

http://www.cancer.org/cancer/cancercauses/othercarcinogens/pollution/radon 1/27/2015

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Radiation Protection

Radon Division

The Radon Division helps to ensure public health and safety by increasing public and professional awareness of radon and its health risks by administration of a certification program for radon testing, mitigation and laboratory analysis individuals and firms. The division provides an extensive amount of expert information to the general public on all matters related to radon. Also, assistance is provided to homeowners, builders and institutions for the monitoring and mitigation of radon.

Pennsylvania has one of the most serious radon problems in the country. An estimated 40 percent of Pennsylvania homes have radon levels above Environmental Protection Agency's action guideline of 4 picocuries per liter

Contacting the Radon Division:

Phone: 717-783-3594

Radon Division Topics

Radon Division

Radon Certification

Radon Monitoring

Latrobe Bulletin
lume 113 - No. 64
WEDNESDAY, MARCH 4, 2015
50¢ Newsst

Several evacuated because of flooding in Darlington

BY SEAN MEYERS
Bulletin Staff Writer

Residents from two Darlington homes were evacuated Wednesday morning as a result of flooding.

Four adults, two children and two dogs were safely transported from their residences on Darlington Road, according to Darlington Volunteer Fire Chief Bob McDowell. Reports indicate that at least one woman had to be rescued by boat.

The combination of significant rainfall and melting snow has created flooding in the region. The National Weather Service has issued a flood advisory for much of western Pennsylvania.

The flooding is more severe in parts of Darlington, as ice jams near the Red Rock area caused the Loyalhanna Creek to overflow its banks around 2:30 a.m., resulting in approximately two feet of water on the roads. The first floors of several residences have been flooded, as well. McDowell also reported that a propane tank in the area floated away, causing an alarming odor temporarily.

With an estimated 25 houses in the Red Rock area, McDowell noted that residents have been given the option to head to safer areas.

"It's their choice if they want to stay of if they want to be evacuated," he noted.

The two families who were evacuated were initially taken to the fire station, and later went to stay with relatives.

In addition to the Darlington fire crew, water rescue teams from Bradenville, Lloydsville and New Alexandria have assisted in today's operations.

Winter weather affects flights, classes; bigger storm coming

Ligonier Valley and Blairsville-Saltsburg school districts are closed today, March 4, after heavy rains and the threat of snow to come.

Rain was projected to change to a mix of rain and snow this morning and change to all snow later in the day. According to the National Weather Service (NWS), Latrobe is projected to get 1 to 3 inches of snow this evening and an additional 1 to 3 inches of accumulation during the day on Thursday.

The NWS has posted a winter storm watch for much of the southern area of the state, with lesser amounts expected to the north.

A winter weather advisory is in effect for the region from 4 p.m. today to 4 p.m. Thursday. Also, a NWS-issued flood warning is in effect until 12:45 p.m. today and a flood watch until 7 p.m.

Elsewhere, officials said airlines have canceled more than 20 percent of the flights into and out of Philadelphia International Airport, and several hundred have been delayed.

Turnpike officials said speed limits have been reduced to 45 mph from the Blue Mountain Interchange to the Delaware River bridge next to New Jersey and on the Northeast Extension.

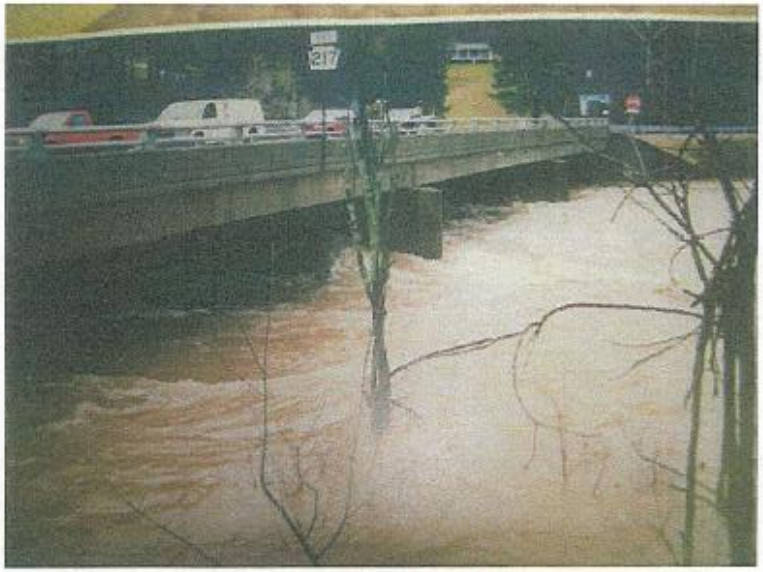
The Pennsylvania Department of Transportation said similar reductions to 45 mph have also been instituted on a number of highways. The Pennsylvania Department of Transportation (PennDOT) said freezing rain and sleet had been reported and urged drivers to be careful, leaving extra time and keeping their lights on so other drivers could see them — and slow down if conditions make that advisable.

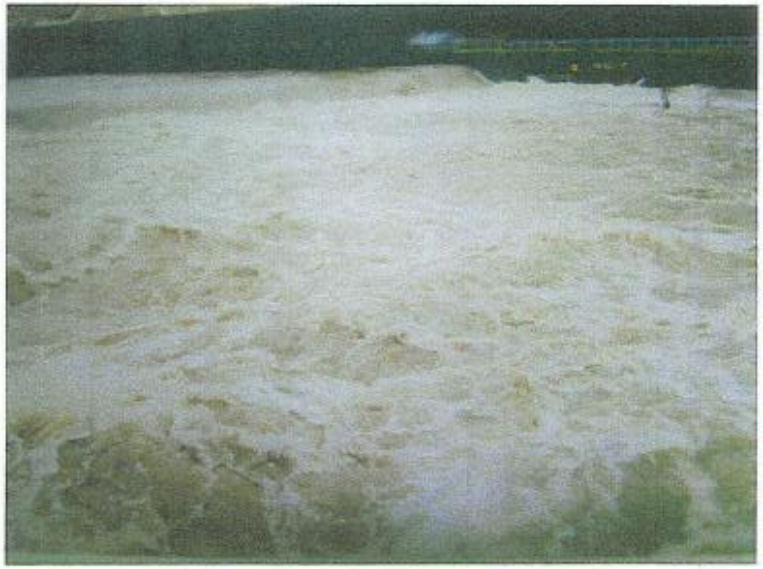
This school bus was stranded in the deep water with children inside it, Idlewild Hill Road, Darlington Bridge area

Red Rock area

High flood waters of the 4 Mile Run at Red Rock cottages

Flooding along Rt. 30, just before Longbridge





High water at Kingston Dam

Latrobe Bulletin
50¢ Newsst
FRIDAY, MARCH 13, 2015
lume 113 - No. 72

Ligonier addresses improvements for damaged Diamond

BY JENNIFER SOPKO
For The Bulletin

Torn-up grass, broken curbs and damaged brick walkways are what councilman Jim McDonnell continually notices around the Diamond in Ligonier.

For at least two years, borough officials have struggled to find an affordable, attractive and effective way to stop careless drivers of large trucks from cutting turns too short when maneuvering the roundabout.

"It's our backyard. It's our front yard. It's the focus point in town. And it takes one terrible beating in the winter. And if you've seen it in the past two weeks, you clearly understand what that's all about," said McDonnell.

On Thursday night council unanimously voted to purchase a set of 12 bollards — vertical posts filled with stabilizing concrete — that will be strategically placed around the edge of the inner Diamond area. The board accepted a proposal from George Ely Associates Inc., an athletic, park and playground equipment company based in Carlisle, Pennsylvania.

The dozen bollards will cost $3,784, plus installation and concrete.

The pyramid-topped barriers will rise 36 inches above ground and be set 42 inches into the ground. McDonnell could not say what material the sleeves would be made from, or what color they will be, but the bollards are expected to look tasteful.

Officials agreed that the bollards would be the best solution to an ongoing problem that's plagued the town.

"They are decorative. They would certainly withstand some punishment. And I believe they would solve the immediate problem immediately at a reasonable bottom line price, including delivery," said McDonnell.

A clear and sunny day Thursday revealed freshly made tire tracks impressed into the grass on the northeast and southwest quadrants of the Diamond. Council president Robert "Buddy" Helterbran described the brick and curbing as "totally destroyed" in some places.

Besides marring the grass and walkways surrounding the bandstand, officials are also concerned that trucks could also ruin the borough's underground sprinkler system, electrical conduits and the 100-year-old six-inch water main that runs both north-south and east-west.

In early 2013 council had debated ways to combat this damage — including installing locally excavated limestone boulders — before settling on upgrading the security camera system at Town Hall in hopes of catching the culprits on camera.

While the borough could potentially fine trucking companies guilty of hopping the curb, it's been difficult to identify the trucks or capture their license plate numbers from the camera angles.

Officials also plan some additional improvements to coincide with the bollard installation, including reducing the sharpness of the curbs on the four quadrants of the Diamond and redoing the interior and exterior brick work around the bandstand. The underlying water lines will also need replaced.

(See Ligonier on Page 3)

Policy Endorsement

The following endorsement changes your policy. Please read this document carefully and keep it with your policy

Sinkhole Activity Coverage Endorsement – AP4868

When this endorsement applies, the following coverage is added:

Sinkhole Activity Coverage
We will cover sudden and accidental direct physical loss to the **dwelling** or other **building structure** covered under **Coverage A – Dwelling Protection** or **Coverage B – Other Structures Protection** caused by **sinkhole activity** or **catastrophic ground cover collapse**, including the expenses incurred to:

a) stabilize the land and **dwelling** or other **building structure**; and
b) repair the foundation of the **dwelling** or other **building structure**.

"**Sinkhole activity**" – means settlement or systematic weakening of the earth supporting the **dwelling** or other **building structure** covered under **Coverage A – Dwelling Protection** or **Coverage B – Other Structures Protection**, but only if the settlement or systematic weakening results from contemporaneous movement or raveling of soils, sediments, or rock materials into subterranean voids created by the effect of water on limestone or similar rock formations.

"**Catastrophic ground cover collapse**" – means geological activity arising out of **sinkhole activity** that results in all the following:

a) the abrupt collapse of the ground cover;
b) a depression in the ground cover clearly visible to the naked eye;
c) **structural damage** to the **dwelling** or other **building structure**, including the foundation, that we cover under **Coverage A – Dwelling Protection** or **Coverage B – Other Structures Protection**; and
d) that **dwelling** or other **building structure** being condemned and ordered to be vacated by the governmental agency authorized by law to issue such an order.

"**Sinkhole loss**" – means **structural damage** to the **dwelling** or other **building structure**, including the foundation, that we cover under **Coverage A – Dwelling Protection** or **Coverage B – Other Structures Protection** caused by **sinkhole activity** or **catastrophic ground cover collapse**.

Sinkhole loss does not mean loss consisting of or caused by man-made conditions including, but not limited to, mine subsidence, hydraulic fracturing, the collapse of storm and sewer drains, or the collapse of rapid transit tunnels.

"**Structural damage**" – means the **dwelling** or other **building structure** that we cover under **Coverage A – Dwelling Protection** or **Coverage B – Other Structures Protection**, regardless of the date of construction, has experienced the following:

a) Interior floor displacement or deflection in excess of acceptable variances as defined in ACI 117-90 or the Pennsylvania Uniform Construction Code, which results in settlement related damage to the interior such that the interior building structure or members become unfit for service or represents a safety hazard as defined within the Pennsylvania Uniform Construction Code;
b) Foundation displacement or deflection in excess of acceptable variances as defined in ACI 318-95 or the Pennsylvania Uniform Construction Code, which results in settlement related damage to the **primary structural members** or **primary structural systems** that prevents those members or systems from supporting the loads and forces they were designed to support to the extent that stresses in those **primary structural members** or **primary structural systems** exceeds one and one-third the nominal strength allowed under the Pennsylvania Uniform Construction Code for new buildings of similar structure, purpose, or location;
c) Damage that results in listing, leaning, or buckling of the exterior load bearing walls or other vertical **primary structural members** to such an extent that a plumb line passing through the center of gravity does not fall inside the middle one-third of the base as defined in the Pennsylvania Uniform Construction Code; or
d) Damage that results in the building, or any portion of the building containing **primary structural members** or **primary structural systems**, being significantly likely to imminently collapse because of the movement or instability of the ground within the influence zone of the supporting ground within the sheer plane necessary for the purpose of supporting such building as defined in the Pennsylvania Uniform Construction Code.

"**Primary structural member**" – means a structural element designed to provide support and stability for the vertical or lateral loads of the overall structure.

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Appendix 7

Mark L. Cline Sr.

1 Longfellow Ave.

Bradford, Pa. 16701

My name is Mark Cline and I am the president of the Pennsylvania Independent Petroleum Producers and a member of the new Conventional Oil and Gas Advisory Committee. Tonight I would like to speak about 78.66, Reporting and Remediating Spills and Releases.

All industries have accidental spills and releases. Ours are more evident because they happen outdoors and not in a factory or a huge plant complex.

March 26 the DEP announced that they have pictures of our industry doing environmental harm. The first set of pictures came from a spill near Bradford on March 11, 2010. It showed the cleanup in progress. Pictures #1, 2 and 3 show that. Pictures #4 and 5 show what the creek looks like today. I know you are thinking that it happened 5 years ago and the creek should be fine by now.

There was an oil spill outside of Bradford on July 2, 2014. About 8bbls of oil made its way down the hill, about 300 feet to the creek. Cline Oil was called to help clean it up as the operator was out of town at the moment. The fire department already had booms in the creek upon our arrival. We built an underflow dam before the creek and used a pump to wash the oil from the site of the spill to the dam. We spent several hours flushing all the oil down the hill. Others were cleaning the creek. By running water where the spill ran, it brought the oil on to the surface of the ground as water is heavier than oil. When we were done there was not even a sheen to be seen. The property owner who lives right next to where the spill was, told me last Sunday that she has never seen a sheen since the cleanup. She lets her chickens run loose in the same spot as the cleanup was done. Pictures # 6 thru 10 shows where we cleaned up the ground and little stream where the water made its way to the creek. We did not remove one bit of soil. We finished cleaning the main creek up and the booms were checked every day for a month. Cost was under $10,000. Pictures # 11 thru 14 shows the creek is back to its pristine condition. The DEP was on site during the initial cleanup and checked it often. They were very satisfied with the outcome.

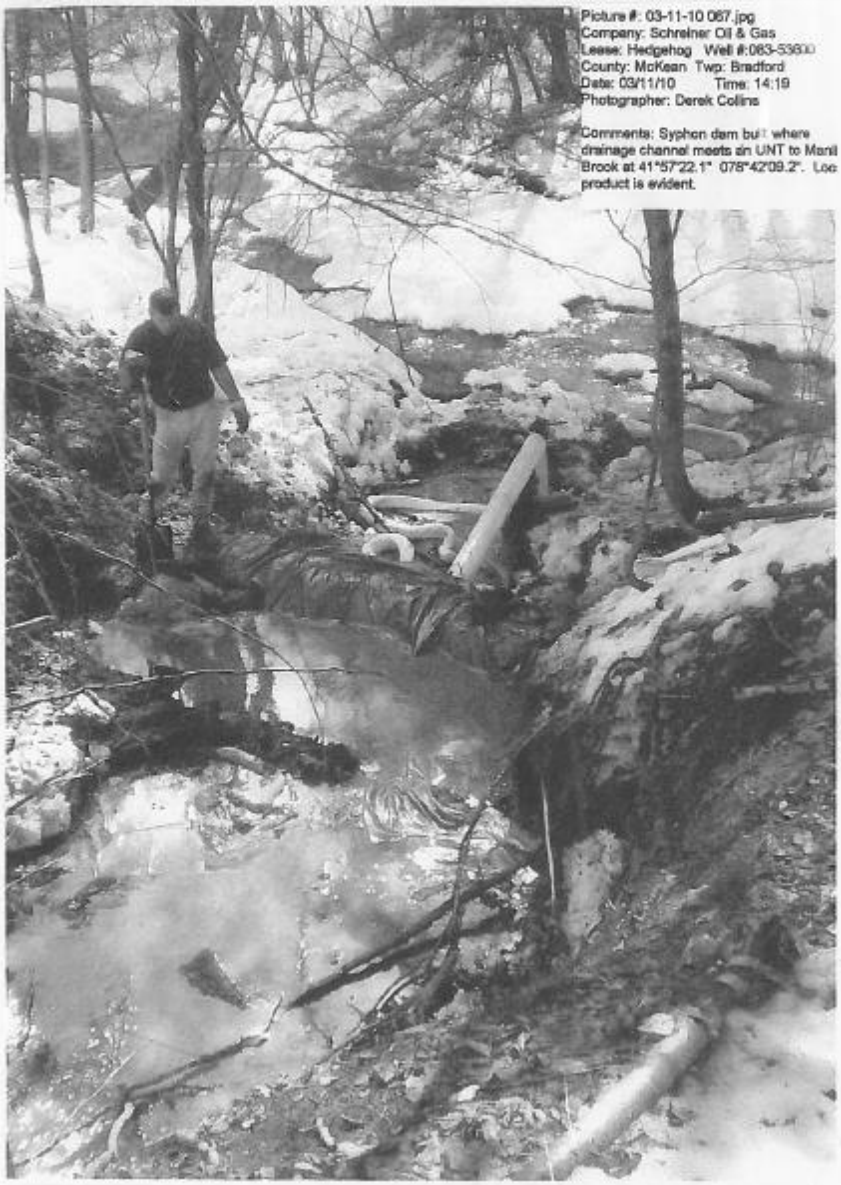
March 19th of this year there was a spill that ran down a ditch beside a road, then under the road and made its way to the creek about 450 feet away. Of course it was reported and water quality showed up and told the company they would have to remove the soil. The soil was only tested with a sniffer and no analytical analysis was done. The DEP let the company flush a 200 foot section of the little creek. Why weren't they allowed to clean the whole spill that way? After that the company did as they were ordered to do. 589 tons of soil was dug up and removed to a landfill. That amount of soil would fill this entire court room 6 to 8 feet deep. The area that was disturbed by doing this caused more harm than if they would have just left the oil on the ground. This spill could have been easily cleaned up the way we have done it for years before Act 2 was forced upon us. There will be sediment in the creek for some time as the bottom and sides of the creek were disturbed, and as you know oil floats on water so why dig up the bottom of the creek.

This cleanup has so far cost close to $200,000 and is not done yet.

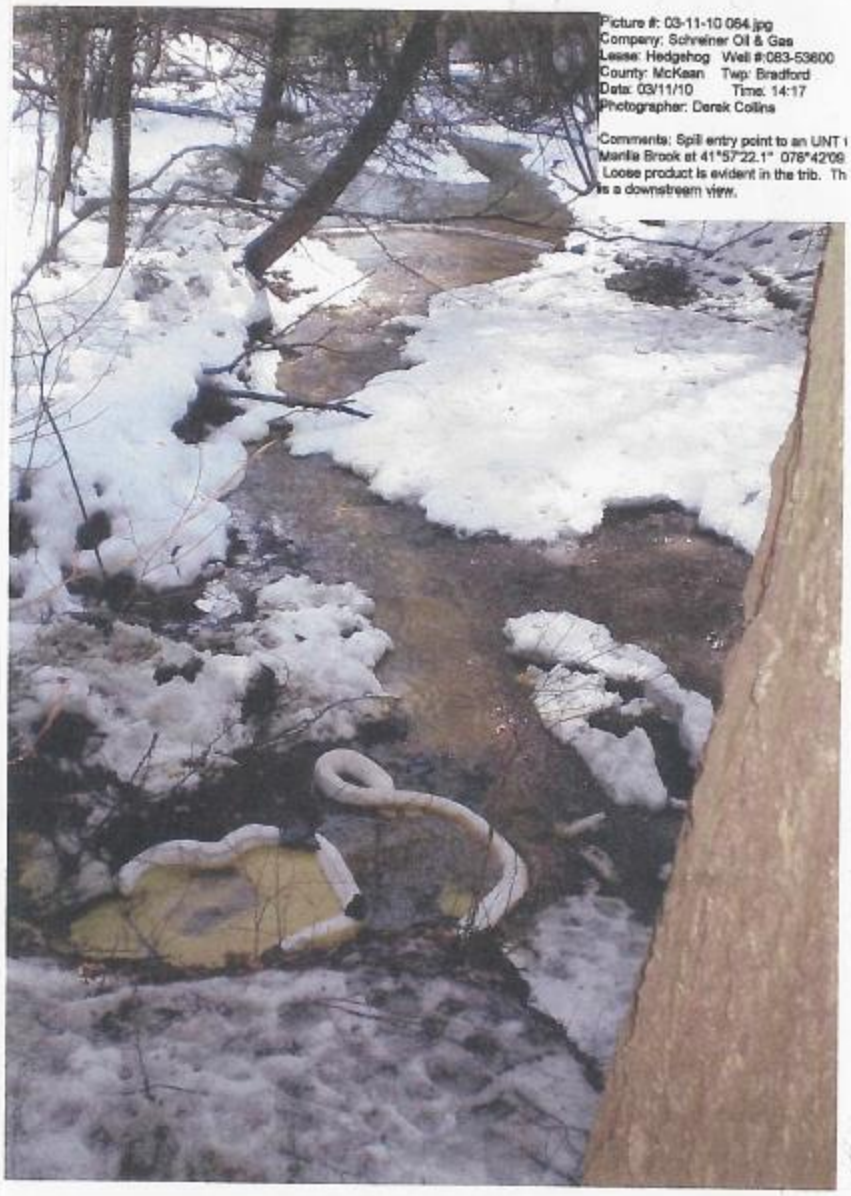
An Act 2 cleanup might sound good on paper but it causes more harm than good. The DEP job is to write regulations that protect the environment not destroy it.

I also have pictures showing what our industry truly looks like. Plus the pictures I have shown tonight are in there.

Schreiner Oil + Gas
Hedge Hog lane
3-11-10



Schreiner Oil + Gas
Hedge Hog lane
3-11-10



Schreiner Oil + Gas
Hedge Hog lane
3-11-10

Schreiner Oil + Gas Spill
Hedgehog lane
03/11/10 After Clean up

Schreiner Oil + Gas Spill
After Clean up
Hedgehog lane
3-17-10

Schreiner Oil + Gas Spill
After Clean up
Hedgehog lane
3-17-10

Schreiner Oil + Gas Spill
After Clean up
Hedge Hog lane
3-11-10

Willow Creek Spill 8 BBls of oil

After Clean up

Spill 7-2-14

NO ACT 2

Willow Creek Spill 8 BBls of oil
After Clean up
Spill 7-2-14
NO ACT 2

Willow Creek Spill 8 BBls
After Clean up
Spill 72-14
NO ACT 2

Willow Creek Spill 8BBls
After Clean up
Spill: 7-2-14

Willow Creek Spill 8BBls
After Clean up
spill 7-2-14

Willow Creek Spill 8 BBls
After Clean up
Spill 7-2-14

Oil Spill
March 19 2015
Act 2 Clean up

Oil Spill
March 19, 2015
Act 2 Clean Up

Oil Spill
March 19, 2015
Act 2 Clean Up

Oil Spill
March 19, 2015
Act 2, Clean Up

Oil Spill
March 19, 2015
ACT 2 Clean up

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ACT 2 Clean Up

Oil Spill
March 19, 2015
Act 2 Clean Up

Oil Spill
March 19, 2015
Act 2 Clean Up

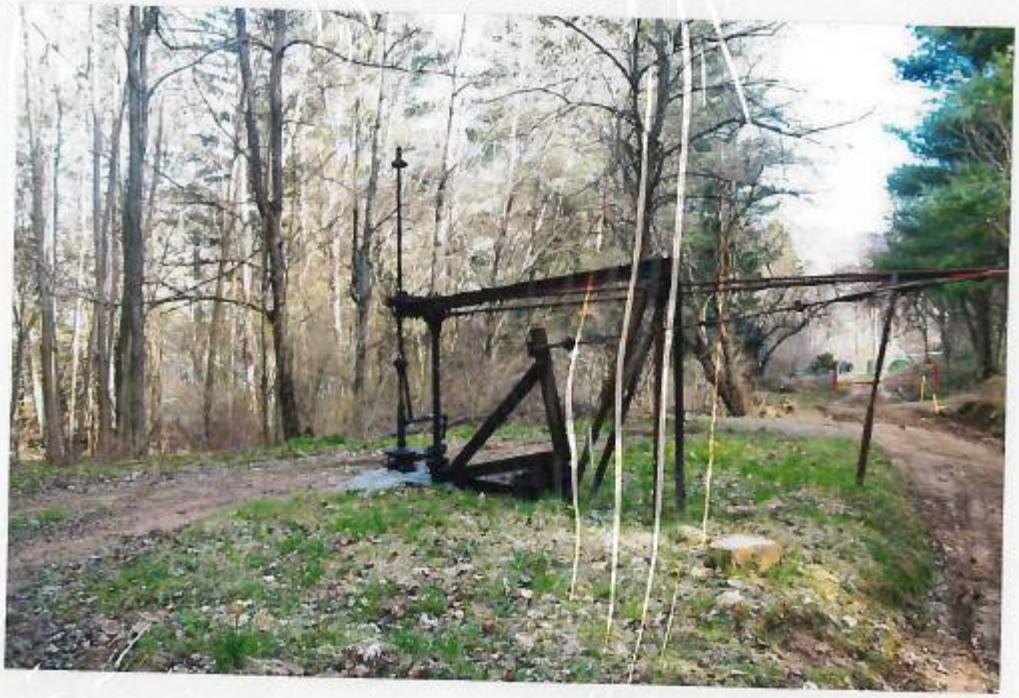
DANGER
KEEP OUT

OLDEST PRODUCING
OIL WELL IN
BRADFORD

DRAKE

WATER

MF-205
419509



CHURCHILL

JENSEN

PRIVATE
PROPERTY
WATER

KRANTZ
FB644
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JENSEN

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