INTRODUCTION

We, the members of the Forty-Third Statewide Investigating Grand Jury, having received and reviewed evidence regarding allegations of violations of the Solid Waste Management Act occurring in Washington County, Pennsylvania, pursuant to Notice of Submission of Investigation Number 42, do hereby make the following findings of fact, conclusions, and recommendation of charges.

FINDINGS OF FACT

This presentment arises from a comprehensive and ongoing statewide investigation of numerous environmental crimes that have occurred during fracking operations in the Commonwealth of Pennsylvania. The investigation began in 2018, after county District Attorneys requested the assistance of the Office of Attorney General. The investigation has resulted in two other presentments recommending criminal charges. The Grand Jury further intends to issue a Report documenting bases for legislative, executive, and administrative action. The current presentment focuses on offenses committed, over a period of years, at one of the fracking sites in question: the Yeager well pad in Washington County, operated by the Range Resources company.

The Company

Range Resources Appalachia, LLC, was originally formed in 1976 as Lomak Petroleum, Inc. The company is among the most active drillers in Pennsylvania, and has been a leader in the exploitation of the Marcellus Shale – a deep rock formation containing gas that must be accessed through "unconventional" drilling – *i.e.*, hydraulic fracturing, or "fracking." In 2004, Range drilled the first successful well in the Marcellus Shale—the Renz #1 in Washington County, Pennsylvania. By 2009, Range Resource's net acreage in the Marcellus had grown to more than 1.3 million acres.

Unconventional Drilling

The Grand Jury learned that unconventional drilling for natural gas has enabled the extraction of oil and gas from once unsuitable geological formations. In Pennsylvania, unconventional drilling has targeted the Marcellus and Utica Shale formations. The Marcellus Shale gas deposit stretches beneath 575 miles of West Virginia, Pennsylvania, Ohio and New York.

The process of drilling and fracking a well takes place in several stages. First, the well site is prepared by clearing and leveling the land and constructing the production infrastructure. This includes creating a well pad for the drilling rig and other equipment, building an access road to the well pad and (until recently) digging pits to hold fluids, soil and rock fragments – called drill cuttings – that are produced by the drilling process.

Once the site is prepared, drilling of the wells can begin. The drilling process requires large machinery to drill into the earth. Fluids and chemicals are poured into the drill hole – which is called a wellbore – to reduce friction of the drill and allow the drill cuttings to move up and out of the wellbore. After the hole is drilled, pipe is inserted to keep the wellbore stable. Then the drillers pump cement into any spaces remaining between the outside of the pipe and the walls of the hole. The cement secures the pipe in place.

When the drill gets down to an oil-bearing rock formation, the drill bit is gradually turned from vertical to horizontal. Drilling then continues horizontally, deep underground, for several thousand more feet.

Once the drilling process is done, explosives are sent down the wellbore to perforate multiple holes in the rock. This is when the hydraulic fracturing process really begins. The gas

sought in fracking operations does not flow freely underground, but is locked into solid rock formations called shale. Multiple fractures are created in the shale by pumping large amounts of fluid, at extremely high pressure, down the wellbore and into the perforations made by the explosives. The base fluid is water, but a variety of potentially dangerous chemical additives have to be mixed into the water to help release the gas trapped inside the shale. Once released, the gas flows up to the surface.

The hydraulic fracturing process requires incredibly large amounts of water – sometimes up to 15 million gallons of water for one well. Much of the water that is injected into the well is later forced back up to the surface by pressure. That waste water is filled with the chemicals that were added to it, but it also contains other compounds, such as chloride and strontium, that are picked up deep underground. Because the waste water is toxic, it must be collected, treated or disposed of in accordance with DEP regulations.

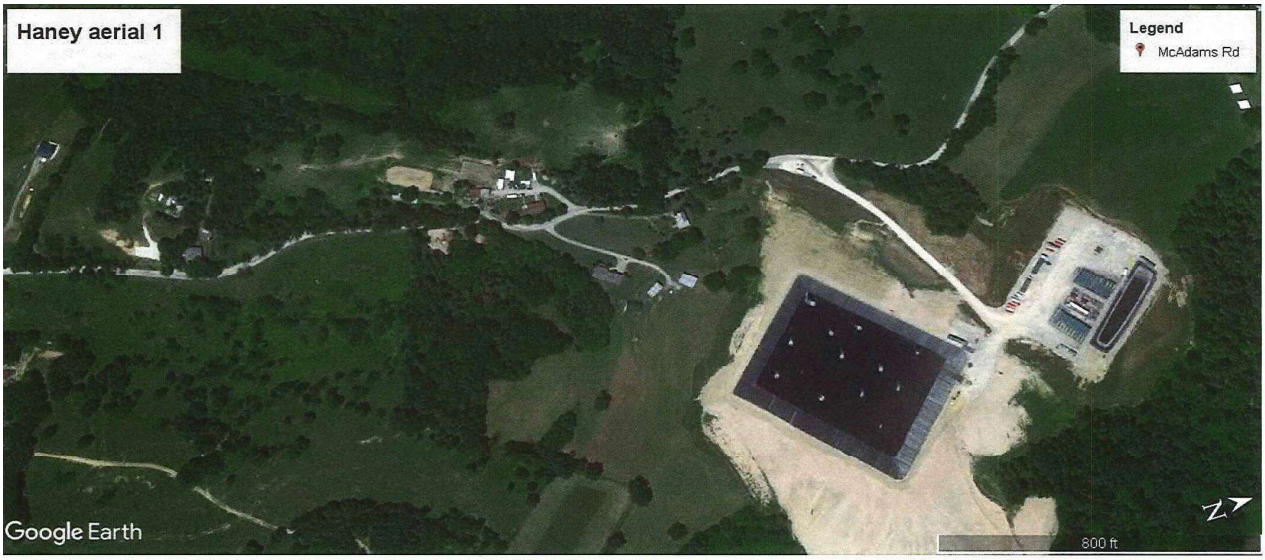
Work Begins at the Yeager site

Range Resources submitted a Notice for Intent for Coverage under the Erosion and Sediment Control General Permit (ESCGP-1) on June 26, 2009. This Notice indicated that the Yeager Well Pad would be located on McAdams Road in Amwell Township in Washington County, Pennsylvania. The document indicated that, in addition to the well pad, access road and pipeline construction, the site would include a pit in the ground – an impoundment – to hold fresh water.

The Grand Jury learned that centralized impoundments were, for a time, the most widely used method of storing water on or near a well pad. The water typically stored in an impoundment is not fresh water, however – it is the waste water that comes back up from a well after it's been fracked. Impoundments are generally very large holes dug into the ground that are lined with

heavy duty plastic before being filled with liquids from the operations on site or from other well pads.

DEP issued a letter to Range Resources on June 29, 2009, acknowledging that Range Resources activity at the Yeager Well Pad would be covered under ESCGP-1. Roughly one year later, Range Resources received a Dam Permit for the Yeager impoundment. This allowed the impoundment to be used for fluids other than fresh water. When the site was completed, it consisted of three wells, a pit to hold drill cuttings and the impoundment for fluids. Below is a photograph of the location:



And Problems Follow Almost Immediately

As soon as the site was complete, issues arose. There were tears in the liners that were supposed to protect the impoundment from leaking, and there were numerous spills around the pad. The impoundment went septic more than once – that is, the waste water became overrun with bacteria – causing horrible smells throughout the area, which Range then treated with highly toxic chemicals. All of this was adjacent to the backyards of neighbors surrounding the site.

Our investigation revealed that Range was well aware of the problems at the Yeager well pad. We heard, for example, from Carla Suszkowski, an employee at Range Resources through 2011 who was responsible for permits, and for responding to water contamination complaints. Suszkowski testified about a number of compromises to the impoundment, beginning before it was even officially in service, when a load of reused fracking water was dumped into it before it had been sealed. She also reviewed lab reports from 2010 showing that water outside the impoundment had similar chemical composition to water in the impoundment, indicating that leaking had occurred.

Suszkowski also acknowledged repeated problems with fetid odors from the impoundment. She testified that the water wasn't properly circulated, thus allowing explosive growth of bacteria. Range used a powerful chemical to treat the water, but was told to stop because the treatment chemical was toxic to humans.

Suszkowski also testified about problems with the liner of the separate pit that was dug at the site to hold drill cuttings. That liner, too, leaked fluid onto the ground during her time with the company, contaminating Mr. Yeager's springs. Range decided to flush the pit with fresh water, hoping to decontaminate the springs. The effort did not succeed.

Glenn Truzzi was employed by Range Resources from 2010 to 2019. He was responsible for construction and operation of well site impoundments. He testified that Range's fracking impoundments were not designed to meet standards for normal landfill storage because, in Range's view, fracking waste water was not as dangerous as waste that would be sent to a landfill. But he acknowledged that leaks from the drill cuttings pit had contaminated the natural water supply on the Yeager property, and that Range had to provide Mr. Yeager with a temporary water tank to replace the water he could no longer use from his spring.

Truzzi acknowledged that Range failed to comply with its legal obligations when leaks first began in 2010. He was aware, like Suszkowski, of lab reports indicating elevated chloride levels outside the impoundment. The impoundment should have been shut down for investigation at that time.

But little was done until at least 2013, when neighbors threatened to bring legal action. Truzzi was still with the company in 2014 when it finally entered into a consent decree with DEP, agreeing to shut down the impoundment permanently and begin efforts to clean up the contamination.

In addition to testimony from Range employees, the Grand Jury also reviewed internal documents that revealed the company's knowledge of problems at the site. As early as 2009, Range knew that other impoundments, predating Yeager, had become infested with bacteria. We reviewed documentation detailing discussions with Halliburton about potential remedies. By early August, 2010, only two months after the Yeager impoundment was put into service, Range employee emails were discussing the putrid smells it produced. The emails acknowledged complaints from neighbors that the odors made them feel ill, even when indoors.

The internal documents also confirmed Range's awareness not just of foul odors caused by its pits, but of leaks and contamination. As early as January, 2010, Range was aware of rips in the liner of the reserve (or drill cuttings) pit. We reviewed an internal inspection report from January 15, 2010, in which small tears in the liner were noted. The inspection report was followed up by invoices from ROC Service Company, LLC, a company employed to patch the holes. In spite of these repairs, only two months later, in March 2010, there was another internal inspection report, indicating that the Yeager drill pit was leaking.

We also reviewed Range emails regarding the impact of the pit on Mr. Yeager's springs. In May 2010, there were internal discussions about Mr. Yeager's concerns. Samples taken later that year confirmed the presence of high chloride and calcium levels. But instead of acknowledgement that Range's operations may have affected the springs, Mr. Yeager received a letter suggesting that the problem was road salt – as if this were the first year in which it had snowed in that area.

Only months later did Range first acknowledge any responsibility for contamination to the springs. Internal documents reflected the plan to flush the area with fresh water, but recognized that the effort was inadequate: "As you are aware, we have affected Yeager's water supply springs adversely due to a reserve pit issue on the Yeager well pad. We have flushed the reserve pit with approximately 30,000 gallons of water, but I fear this is nowhere near enough, based on the amount of time that the reserve pit may have been leaking."

Impact on Neighbors

The criminal statutes at issue here do not require proof that Range's actions caused any specific medical condition. Rather, the statutes are designed to protect against the risk of adverse effects on the general health, safety, and welfare of the community. The experiences of two neighbors illustrate the consequences of Range's conduct at the Yeager site.

Stacey Haney purchased her house near the future Yeager site in 1999, long before the fracking revolution. The house had once belonged to her great grandfather. She and her husband set to work renovating and remodeling the property, which came with its own reliable and clean source of water. A decade later, Range began construction of the Yeager well pad, only1,200-1,500 feet from her property. The Yeager pad sat uphill and out of sight; at first she didn't even know it was there. That soon changed. Haney had leased her mineral rights to Range in 2008 –

like many others, not understanding the full consequences. As it turned out, the financial benefits were minimal, while the costs were significant.

By 2010, Haney began to experience problems with her water, including sediment and odors, although it had always been pure and clean before. The family began to experience burns to their skin, problems breathing and upset stomachs when showering. By August 2010, Haney had to haul in her own drinking water from outside sources for consumption.

Health concerns followed. They included skin rashes, sores on the body and mouth, nose bleeds, extreme fatigue, headaches, and swollen lymph nodes. Neighbors met with Carla Suszkowski from Range, who assured them that the impoundment could never leak without the company knowing it immediately. Haney, like this Grand Jury, learned later that this was not the case. Range for a time supplied a water tank. Haney believed the family would begin feeling better once they stopped drinking their own water.

But while the Haneys could control the water they drank, they couldn't control the air they smelled and breathed. During periods when the impoundment was septic – overrun with bacteria – the smell was so bad the Haneys couldn't leave the house. "It felt like we were being fumigated like bugs, like if you were a bug in a house and had, you know, a bug bomb set off. That is what it felt like." In 2011, aerators – which had been installed in the impoundment to circulate the water – stopped working, and the impoundment generated a toxic cloud of hydrogen sulfide.

The Haneys left their farm and lived a nomadic existence for several years in campers and rental units, and with family and friends. Her children had trouble concentrating and fell behind in school. Their unoccupied house near the Yeager site was repeatedly vandalized, but Haney remained liable for the mortgage. They still do not know if exposure to the drilling site will cause long-term medical issues, and have been advised to undergo cancer screening for decades.

Beth Voyles was another Yeager well site neighbor. She and her family lived in the home in which her husband had been raised, a farmhouse with pure well and spring water, in the midst of forests and fields. When the land agents came offering to buy mineral rights, they "told us how safe it was going to be and it wouldn't hurt our water because that was our main thing." But they never mentioned the trucks – sometimes 200 a day drove through – or the smell, or the air that burned.

The normally abundant water supply began to dry up, even though there had been a wet winter. The water also contained bits of an unknown black material, and had a foul smell and strange taste. The farm animals wouldn't drink it. The Voyles had to buy a water tank to supplement the well. As with the Haneys, family members began experiencing skin rashes, unexplained headaches, nose bleeds and extreme fatigue.

When the impoundment became so septic that Range had to use a particularly dangerous germicide to treat it, Voyles could feel it on her face and in her lungs. A worker later told her that employees administering the chemical had to wear hazmat suits, that civilians should have been evacuated during the process, and that the workers were not allowed to warn any of the neighbors about what they were doing. Now, like Ms. Haney, she is left to worry about "what the future holds… [what] we have been exposed to and what to expect… what kind of toll it is going to take on us."

DEP evidence

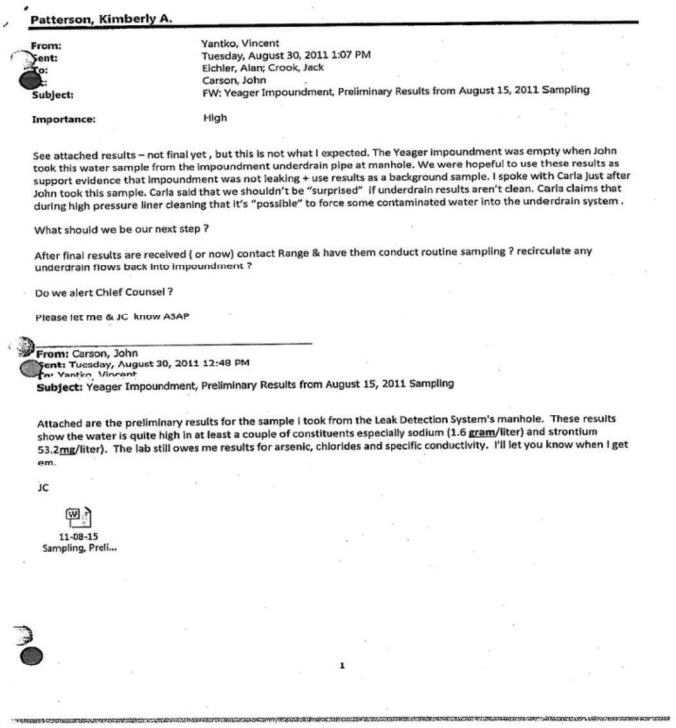
Although problems at Yeager continued for years, DEP employees generally confirmed what we learned from other evidence: that the liner in the Yeager drill cuttings pit was compromised, and that the result was the contamination of the Yeager spring water. Indeed, we heard testimony from a DEP employee that Range's effort to respond to the contamination, by

flushing the ground with more water, may actually have made the contamination worse by spreading it even farther. "[D]rilling fluids released travelled along the soil/bedrock interface and … the soil layer just above the bedrock probably still contains those constituents to some degree."

We learned that some DEP employees were uncomfortable with the whole idea of impoundments as a means of storing chemical-filled waste water. As one explained, "anything underground, below the ground level is asking for trouble. I'd much prefer to see things totally above ground. If you see a leak, it's going to be obvious."

DEP records also confirmed problems with the air. A study in November 2010 detected methane and methyl mercaptan in all of its sampling sessions at the Yeager impoundment. Sampling equipment also captured 2-Methoxy-2-methylpropane, carbon monoxide, methanol, propane, nitrous oxide and ozone at the impoundment. The report noted that methyl mercaptan is a sulfur-containing colorless gas with an unpleasant odor like rotten eggs, detectable by the nose at 1 part per billion. The compound was found at the Yeager impoundment for short periods of time at concentrations more than 100 times higher, in the range of 135-1,249 parts per billion. A DEP air quality specialist, William Jester, who participated in that study described the Yeager impoundment as "one of the worst smelling sites I had ever been to."

Despite such findings, Range took the position that all was under control. This DEP email, for example, marked "high" importance, reported that water test results under the impoundment were not what should be expected; inspectors had been "hopeful" that the testing would show the impoundment was not leaking, but that was not the case. As the email documents, however, "Carla" – the Range employee – had a different interpretation: that the results were not surprising at all, and certainly not evidence of any leak.



Patterson, Kimberly A.

From: Yantko, Vincent
Sent: Tuesday, August 30, 2011 1:07 PM
To: Eichler, Alan; Crook, Jack
Cc: Carson, John
Subject: FW: Yeager Impoundment, Preliminary Results from August 15, 2011 Sampling

Importance: High

See attached results – not final yet , but this is not what I expected. The Yeager impoundment was empty when John took this water sample from the impoundment underdrain pipe at manhole. We were hopeful to use these results as support evidence that impoundment was not leaking + use results as a background sample. I spoke with Carla just after John took this sample. Carla said that we shouldn't be "surprised" if underdrain results aren't clean. Carla claims that during high pressure liner cleaning that it's "possible" to force some contaminated water into the underdrain system .

What should we be our next step ?

After final results are received (or now) contact Range & have them conduct routine sampling ? recirculate any underdrain flows back into impoundment ?

Do we alert Chief Counsel ?

Please let me & JC know ASAP

From: Carson, John
Sent: Tuesday, August 30, 2011 12:48 PM
To: Yantko, Vincent
Subject: Yeager Impoundment, Preliminary Results from August 15, 2011 Sampling

Attached are the preliminary results for the sample I took from the Leak Detection System's manhole. These results show the water is quite high in at least a couple of constituents especially sodium (1.6 gram/liter) and strontium 53.2mg/liter). The lab still owes me results for arsenic, chlorides and specific conductivity. I'll let you know when I get em.

JC

11-08-15 Sampling, Preli...

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Finally, we reviewed a Certification of Records from DEP to confirm that Range Resources never applied for or was granted a permit or an exemption to a permit pursuant to the Solid Waste Management Act to dump or deposit any waste from any source at or near the former Yeager Centralized Impoundment or drill cuttings pit located in Amwell Township, Washington County, Pennsylvania, or to discharge any waste from that site into any waters of the Commonwealth.

The Cleanup

Conditions did not start to improve at the Yeager site until 2014. That is when Range Resources finally entered into a consent order with DEP to close down the impoundment and try to clean it up. The consent order stated that Range failed to monitor chlorides in the leak detection zone, that the company failed to contain fluids in the impoundment, and that "fluids with high chlorides concentrations were released to the ground, indicating a release of flowback, frac fluids, or similar fluids stored for use and/or re-use."

Range hired an outside contractor, Civil and Environmental Consultants, to conduct the remediation efforts. A CEC representative testified before the Grand Jury that it was "unquestionable that the cuttings pit had an impact on the spring." And he said the liner of the impoundment had clearly leaked as well. CEC developed and implemented a plan to remove the drill cutting pit and impoundment, excavate the soil, and return the land to its original contours. The ultimate goal is to render the Yeager springs drinkable again. The only thing left to do, however, is "natural attenuation" – simply to wait until rainfall and underground water flow replace the contaminated water with fresh water.

We learned the water quality is getting better. But even after more than five years, it has not yet been returned to its original purity.

Applicable Environmental Statutes

We have learned much over the course of this investigation about the applicable statutes that govern this conduct. The relevant portions of the Solid Waste Management Act define "disposal" to include spilling or leaking. "Residual waste" is any waste, solid or liquid, from industrial or mining operations. "Solid waste" also includes both solid and liquid materials.

We have reviewed various statutory provisions within the Solid Waste Management Act that delineate criminal conduct that is relevant to our investigation. Section 6018.302(b) makes it a crime to fail to control runoff and discharges of residual waste, or to operate facilities in a manner that adversely affects or endangers public health, safety and welfare or the environment. Section 6018.610(1) makes it a crime to dump or deposit solid waste onto the ground or into the waters of the Commonwealth without a proper permit. And Section 6018.610(4) makes it a crime to dispose of solid waste in any manner that adversely affects public health, safety and welfare.

Because of the complexity of investigation and the potentially long-term and serious effects of chemical discharges, which may persist in the environment for years, the Legislature has created a lengthy statute of limitations providing that prosecutions may be brought under the Solid Waste Management Act for a period of up to twenty years following discovery of violations.