

## **INTRODUCTION**

We, the members of the Forty-Sixth Statewide Investigating Grand Jury, having received and reviewed evidence regarding allegations of violations of the Solid Waste Management Act, the Clean Streams Law and related laws, occurring in Greene and Clearfield Counties, Pennsylvania pursuant to Notice of Submission of Investigation Number 63, do hereby make the following findings of fact, conclusions, and recommendation of charges.

## **FINDINGS OF FACT**

This presentment arises from an investigation of numerous environmental crimes that have occurred during unconventional oil and gas activity in the Commonwealth of Pennsylvania. The presentment focuses on offenses committed, over a period of years, at several well pads in Greene and Clearfield Counties that were operated by Energy Corporation of America and now, by Greylock Production, LLC.<sup>1</sup>

Landowners living in close proximity to some of the well pads in question suffered impacts to their drinking water supplies. Some of these water supplies are still impacted today. Debate continues about the health impacts that come from living in proximity to fracking operations. We need not resolve those questions. Environmental laws exist precisely to prevent such debates by prohibiting the dangerous conditions that give rise to these risks to health, safety, and welfare. This Grand Jury finds that Energy Corporation of America and Greylock Production, LLC criminally failed to address the environmental hazards created by their operations at various well sites in Greene and Clearfield County.

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<sup>1</sup> Upon information and belief, Greylock Production, LLC is in the process of selling the Clearfield County assets to another company. For the purposes of the criminal behavior discussed in this presentment, the pending sale is irrelevant.

## I. A Description of the Companies

Energy Corporation of America (ECA) was originally formed in 1963 as a natural gas and oil exploration, extraction, production and distribution company. The company owned and operated approximately 5,200 wells, 5,000 miles of pipeline and 1,000,000 acres in North America. By July, 2009, ECA had drilled 155 unconventional wells in the Marcellus shale, 20 of which were located in Greene County, Pennsylvania.

In November, 2017, ECA sold substantially all of its assets to ArcLight Capital Partners' subsidiary, Greylock Production, LLC (Greylock). At the time of the acquisition, ECA's Chief Operating Officer became the CEO for Greylock. The company includes a drilling and completions division, a production division and midstream operations as well. Greylock has assets that include more than 900,000 acres, 4,400 wells and 2,600 miles of pipeline.

## II. A Brief Description of Unconventional Drilling

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 and hydraulic fracturing process.

Once the site is prepared, drilling of the wells can begin. The drilling process occurs in stages and utilizes large machinery to drill into the earth. Fluids and chemicals are used to assist in the drilling process in order to manage the friction of the drill and allow the drill cuttings to move up and out of the well. As each section is drilled out, pipe of various diameter is inserted into the ground to stabilize the hole – the wellbore. This pipe is called a casing. Cement is then typically pumped between the wellbore and the pipe to secure the pipe in place. A smaller diameter wellbore is then drilled into the next depth of the earth. When that portion is drilled out, a smaller pipe is again placed within the next section of wellbore and cement is again poured between the wellbore and the pipe to secure it. This process continues until the wellbore reaches the depth of the resource-bearing rock formation. When the wellbore reaches its target formation, its trajectory is slowly turned from vertical to horizontal and drilling continues for several thousand feet.

Once the drilling process is complete, perforating guns are lowered into the horizontal portions of the well and explosives are detonated to puncture holes through the cement and the casing and into the rock formation. This is when the hydraulic fracturing process begins. The gas sought in fracking operations does not flow freely, but is locked into rock formations called shale. Multiple fractures are created in the rock by pumping large quantities of fluids at high pressure down the wellbore and into the target formation. Hydraulic fracturing fluid commonly consists of water, plus chemical additives and a granular material called proppant that open and enlarge fractures within the rock formation. The proppants – sand, ceramic pellets or other small particles – help keep the newly created fractures from closing up so that the gas that was trapped inside the shale can be released.

The hydraulic fracturing process uses incredibly large amounts of water—sometimes up to 15 million gallons of water for one well. Much of the water that was injected into the well will



return to the surface as waste water – also known as flowback or production water – and must be collected, treated or disposed of in accordance with regulations of the Pennsylvania Department of Environmental Protection (DEP). In the early days of fracking, this waste water was often stored temporarily in pits or impoundments on or near the well site. The waste water contains the potentially dangerous chemical additives used in the drilling process, and additional compounds as well, such as chloride, strontium and radium, that were safely locked away in the underground rock formations, but are now broken free and come to the surface in the flowback. When the waste water comes back out of the well, the proppant remains in the fractures and the natural gas begins flowing upward. At this point, the well is said to be in production. It is common for multiple wells to be drilled and fracked on a single site.

At the end of the life of a well pad, or 9 months after the wells on site have been drilled, whichever is later, any pits on the pad must be reclaimed. A witness explained to us how this process would work while he was employed by ECA. He explained that the first step was to remove the fluids from the pit. Once the liquid was removed, a sludge remained in the bottom of the pit. ECA hired a consultant to sample the sludge, and to prepare a form (Form U) required by DEP to process or dispose of residual waste. Once samples had been collected, the process of removing the sludge would begin. A subcontractor would typically break up the sludge with firehoses and push it into a pump. The water and sludge would then be pumped into a centrifuge which would spin any of the water out of the solids. The solids would move into a bin and the water would be recirculated so that the process could continue. If the solids were dry enough, they would be loaded onto trucks and hauled off site for disposal. If the solids still had too much liquid in them, they would be placed into dumpsters and mixed with various materials to remove more of the water. Before disposal at a landfill, the boxes would be scanned for radiation as required by

the Form U process. The liner would then be pressure washed to remove any lingering sludge, and inspected by an environmental consultant for any holes or other questionable areas. After that, the liner would be removed, along with a layer of felt installed underneath the liner. According to the ECA witness, there would never be a time when the liner or the felt would remain inside a pit that was being reclaimed. The environmental consultant would then inspect the soils underneath the former pit and collect samples. Any areas of contamination would be marked and a contractor would remove the marked soils. After removal of the soils, the environmental consultant would collect new samples to ensure that all contaminated soils had been removed. That process would continue until all contaminated soil had been removed or the contractor hit bedrock. The contaminated soils would be disposed of under their own Form U at the same landfills that took the sludge. Once all the contaminated soils were removed, the hole would be filled in with clean fill, topsoil would be added, grass seed would be planted and the site would be monitored to ensure that grass was growing.

### III. Wells are Drilled in Greene and Clearfield Counties

ECA operated multiple well sites in Greene and Clearfield Counties. The chart below sets forth the sites that are relevant to our investigation.

WELL SITE	TOWNSHIP	COUNTY	ESCGP <sup>2</sup> PERMIT APPROVAL DATE	DATE OF EXPIRATION OF FINAL WELL PERMIT FOR SITE	DATE OF LAST ACTIVE WELL COMPLETED	DATE OF REMOVAL OF FLUIDS FROM IMPOUNDMENT
Blaker Minor	Cumberland	Greene	4.21.2010	4.14.2011	7.18.2011	Prior to 3.13.2017
Britner	Cumberland	Greene	9.28.2011	10.14.2012	9.11.2012	Prior to 3.13.2017

<sup>2</sup> Erosion and Sediment Control General Permits.



Broadwater	Jefferson	Greene	9.13.2013	2.6.2015	4.17.2015	Prior to 3.13.2017
Coldstream A	Goshen	Clearfield	11.20.2009	9.28.2010	3.28.2011	Prior to 3.13.2017
Coldstream B	Goshen	Clearfield	11.20.2009	7.5.2013 <sup>3</sup>	1.13.2013	Between 11.1.2016 and 11.17.2017
Fuller A	Cumberland	Greene	4.7.2009	2.16.2011	9.13.2010	Prior to 3.13.2017
Fuller B	Cumberland	Greene	10.11.2011	4.20.2013 <sup>4</sup>	1.20.2013	Prior to 11.17.2017
Gribble	Cumberland	Greene	6.30.2009	10.22.2010	8.20.2010	Prior to 3.13.2017
Hoge Noce	Cumberland	Greene	2.7.2009	4.2.2013	8.10.2012	Prior to 3.13.2017
Meadows	Cumberland	Greene	4.12.2010	10.12.2011 <sup>5</sup>	8.30.2011	Prior to 3.13.2017
Mohr A & B	Cumberland	Greene	4.19.2011	5.16.2012 <sup>6</sup>	5.2.2012	On or about 6.21.2015
Pechin	Cumberland	Greene	11.2.2010	1.20.2012 <sup>7</sup>	10.20.2011 <sup>8</sup>	On or about 6.13.2018
Penneco Morrow	Whiteley	Greene	7.15.2009	6.9.2011	8.8.2010	Prior to 3.13.2017
Sharpnack	Cumberland	Greene	8.2.2011	3.5.2014 <sup>9</sup>	7.8.2015	Between 5.8.2017 and 11.17.2017
Skib B	Jefferson	Greene	5.18.2009	11.13.2014	3.10.2014	Prior to 3.13.2017
Stelco	Jefferson	Greene	8.23.2013	10.31.13 <sup>10</sup>	9.8.2014	On or about 8.8.2018
Whitetail	Goshen	Clearfield	7.28.2010	5.6.2015 <sup>11</sup>	10.12.2012	Prior to 11.17.2017

We have learned that almost every unconventional well site in Pennsylvania had an on-site pit that could be used to handle temporary storage of water from the wells on that site. The water typically stored in these pits was not fresh water, however – it was usually a combination of flowback and production water that comes from a well. These on-site pits had very specific time

<sup>3</sup> This site also included a well permit to drill a Utica well that was approved on 11.21.2017.

<sup>4</sup> This site also included a well permit to drill a Utica well that was approved on 11.21.2017.

<sup>5</sup> This site also included a well permit to drill a Utica well that was approved on 11.20.2017.

<sup>6</sup> This site also included a well permit to drill a Utica well that was approved on 9.8.2014.

<sup>7</sup> This site also included two well permits to drill Utica wells that were approved on 2.8.2017.

<sup>8</sup> ECA requested and received from DEP a 6-month extension for reclaiming this pad.

<sup>9</sup> This site also included a well permit to drill a Utica well that was approved on 11.20.2017.

<sup>10</sup> This site also included three additional well permits that were approved on 11.20.2017.

<sup>11</sup> This site also included a well permit to drill a Utica well that was approved on 10.15.2015.

frames that were placed on their existence. The regulations required that the owner or operator must remove or fill the pit within 9 months after completion of drilling the wells on the pad or the expiration of the final well permit for the pad, whichever comes later.

Centralized impoundments were, for a time, another common method of storing waste water on or near a well pad. The benefit of a centralized impoundment was that it allowed the company to use it as a centralized location for water storage that could service multiple well pads in the area. Additionally, there were no limitations on the amount of time that a centralized impoundment could remain on site. Centralized impoundments are generally very large pits that have very specific construction standards that take into account that they may be in existence far longer than the time frame contemplated by the on-site pits. Although the standards have evolved over time, what was required since 2010 was a dual liner that contained a leak detection zone between the liners as well as a monitoring system that could detect the entry of contaminants into the ground or surface water.

In the early days of ECA operations, the flowback and produced water from their gas wells was trucked off site for disposal at waste water treatment plants in the area of the well pad. We learned that this was the industry standard procedure for the disposal of wastewater. There was a concern amongst the industry that trying to reuse the water could potentially plug up the gas well or have an adverse impact on the amount of gas that the well could produce. Because of that, there was no will within the industry to attempt to recycle the water. DEP began to suspect that waste water treatment plants that were accepting oil and gas wastewater were incapable of effectively treating those fluids and started to suggest that the industry begin to look into the option of reusing the water to frack additional gas wells. Kyle Mork, an executive at ECA at the time, issued an edict that the company begin recycling its waste water. This edict did not come with specific



instructions for how to make this happen and created a scramble amongst the employees to come up with a plan to be able to accomplish it. We learned that some employees began intensive testing of the wastewater in order to determine whether or not it was chemically possible to reuse the water on future frack jobs. The operations employees were tasked with figuring out how to store this tremendous amount of water in order to have it available for reuse. Rather than reallocating money previously spent on disposal fees into the construction of a DEP approved solution, ECA chose to utilize their already-existing on-site pits as the answer to their water storage problem. A decision which saved the company \$3.44 million in a single year.

#### IV. Illegal Storage of Water Begins

DEP issued permits to ECA for each of the well pads listed on the above table. These are called Erosion and Sediment Control General Permits. The permits required that ECA's activities at these sites would be covered under the submitted applications and that ECA build the sites to the specifications listed in the applications.<sup>12</sup> The permits require that any major modifications to the Erosion and Sediment Control Plan be submitted to the Department for approval. Minor modifications to the permit could be initialed in the field by DEP. The dates of DEP's approval of the ESCGP applications can be found in the table above.

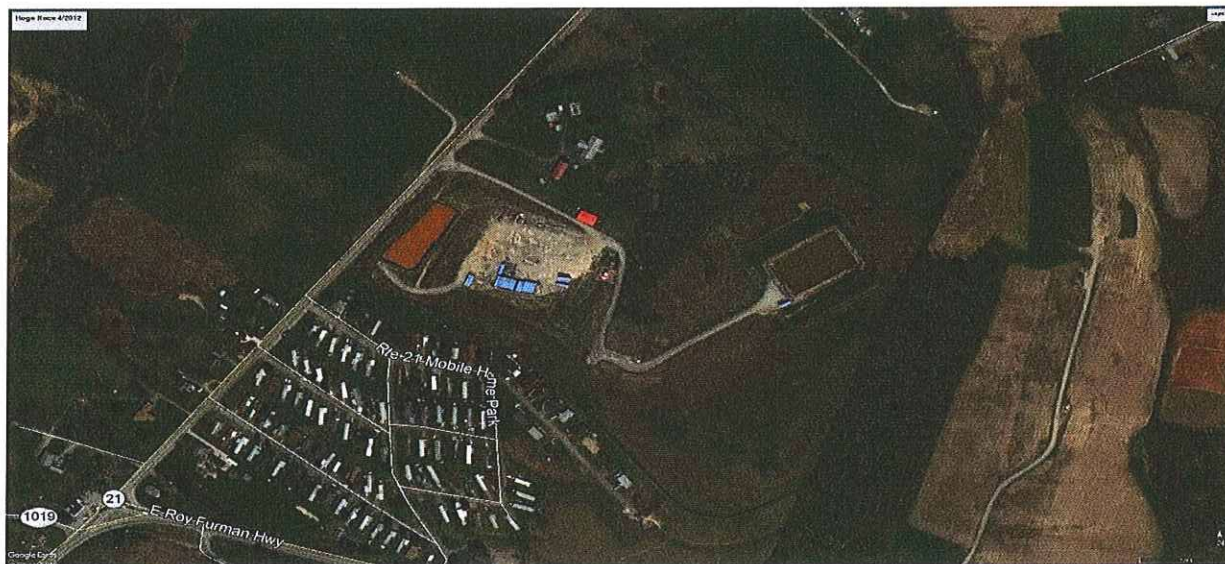
In addition to the erosion and sediment permits, ECA applied for and received permits to drill and operate wells on the various pads. The date of the expiration of the final well permit on the site is listed in the table above. When these sites were completed, they consisted of wells,

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<sup>12</sup> With the exception of the Pechin well site, all of the Erosion and Sediment Control General Permit Applications that were submitted to DEP included only on-site pits for the storage of flowback and production fluids. For the Pechin site, initial plans were submitted to DEP to construct a centralized impoundment at that location. They were subsequently withdrawn by ECA and they proceeded with simple, less environmentally protective, on-site pits at this location as well.



oftentimes a pit to hold drill cuttings, and the onsite pits for fluids. Below is a photograph of one of the locations:



We heard testimony from a Permitting Technician who worked for ECA since 2011. His job responsibilities included obtaining the various types of permits that were required to operate a well pad, including the permits that were required to build the pads themselves and to drill the wells on the pad. He testified that ECA “explored the idea of permitting a centralized storage facility” but that the company never obtained the necessary permits from DEP. He testified that he was aware of legal limitations on the movement of water from on-site pits. He explained that water could move from one site and could be “brought forward” for the purpose of reusing it at a second well pad. He also testified that there is a limit on the amount of time that an on-site pit can be present on a pad: under DEP’s Oil and Gas Regulations, an operator must remove the pits and reclaim the site within 9 months after the final well on the pad is drilled, or after the final well permit for the location expires. He testified that in his early days of employment with ECA, it “wasn’t real clear” whose responsibility it was to keep track of these time frames to ensure that the pits were closed in compliance with the regulations. Over time, he began to keep track of that

data himself. When he first started calculating the end dates for the various pads, he found instances where the pits had already exceeded the 9-month time frame. At times he was asked to apply for another well permit for a pad in order to not have to reclaim the pad and remove the pit. But he knew it was inappropriate to use a well permit to prolong the life of an on-site pit rather than to drill another well.

In our review of the well permits for each of the pads involved in this investigation, it became clear that ECA did submit requests for additional well permits on some of the pads, often months or years after the pit should have already been reclaimed. In fact, most of them came in 2017, after ECA was aware that it was under investigation by DEP. The additional permits are noted as footnotes in the table above.

Review of relevant documentation shows that ECA failed to restore several sites within the legally required 9-month time frame. This was in violation of the Oil and Gas Act and the associated regulations. These sites included: Coldstream B, Fuller B, Mohr A & B, Pechin, Sharpnack, Stelco and Whitetail. There may have been more sites that were not restored within the required time period but, due to the poor record keeping of the company, it was impossible to ascertain the date that fluids were removed from many of the pits.<sup>13</sup>

## V. Illegal Movement of Water Begins

As the well pads were constructed and wells were drilled and fracked, there began an elaborate process of moving water from one location to another. Waste water can be lawfully

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<sup>13</sup> This includes some of the sites listed in the table at the beginning of Section III. When a specific closure date couldn't be found, the table uses the date of the Environmental Pad Assessment and Remediation Plan (3.13.2017) submitted to DEP by ECA's environmental consultant, Moody and Associates. That document included a list of the sites that had previously been closed and those that were still open with pits on-site. The other date that is utilized in the table is the date that of a Consent Order & Agreement (11.17.2017) that was signed by DEP and the operators. By that date, on-site pits had been removed from four additional pads.



moved to and from centralized impoundments that have been constructed under proper permits. But ECA generally used on-site pits instead of impoundments. The environmental regulations only allow limited movement of water between such pits. The water can only be removed from the pad where it comes out of the well as flowback or production water and then taken to another pad for use in fracking the wells on that pad.

Instead of complying with the regulations that apply to on-site pits, ECA moved water multiple times among all of its pits, essentially using them as if they were centralized impoundments, even though they were not permitted or built that way.

We reviewed internal ECA documents that show hundreds, and in some cases, thousands of water transfers in and out of a pit. Oftentimes, these water transfers went on for years after the last well on the pad had been drilled and fracked. We heard from employees of ECA who were tasked with the movement of water from one pad to another. One former operations and permitting agent testified that it wasn't until he met with DEP on June 17, 2015 that he even heard the term "centralized impoundment." He testified that, until a DEP representative explained to him that the movement of water from one pad to another is largely governed by the type of containment structure (pit or impoundment), he had been unaware that ECA was using its pits inappropriately. The meeting was also attended by Don Supcoe, III, an operations manager at ECA who should have been aware of the regulations applicable to various containment structures.

We also heard testimony from an ECA water foreman. He handled trucking logistics for water movements. He testified that during his time with ECA, he was unaware that there were limitations on the movement of water from one site to another. He was also unaware that there were limitations on the length of time that a pit could be present on a site. The foreman identified two ECA managers who directed water movement: Hugh Caperton and Don Supcoe, III. The



foreman testified about documents he had prepared, including a set of spreadsheets that covered water transfers from January through July, 2015 for one particular trucking company. The spreadsheet showed that on April 3, 2015, the company moved water from the Whitetail pit to the Stelco pit, in spite of the fact that all of the wells on the Stelco pad had been fracked in September, 2014. As the foreman explained, this documentation showed that water was moved from one location to another without the intention to use the water to frack wells on that second location, which would have been the only legal purpose for the transfer. He testified that this type of movement of water was common when he was working as the foreman for ECA.

## VI. Pollution Problems Begin

As mentioned above, one of the problems with using on-site pits as centralized impoundments is that ECA did not build them to the appropriate standards. Those standards are in place because centralized impoundments are contemplated to be in place for much longer time periods. Many of the on-site pits, however, remained in place and holding waste water for years beyond their expected lifetime. As a result, many of these on-site pits' liners began to wear out, causing rips or tears that allowed wastewater to leak into the soil underneath the pits. Because the pits were not built to the standards of centralized impoundments, they lacked any sort of leak detection system that would have alerted ECA when water escaped.

ECA was put on notice of the problem at least by June, 2015. A DEP employee had received a complaint about dead vegetation from a landowner who was in close proximity to the Mohr A & B well pad. The DEP employee responded to that location, spoke with the complainant and confirmed that there was a large area of dead vegetation close to the pad. He also noted that southeast of the pit, the ground was unusually wet in spite of the fact that the weather had been

very dry. He believed the wet ground could be indicative of fluids leaking out of the pit. Notification was made to ECA of the issues.

We heard testimony from a former ECA employee who participated in the subsequent remediation at the Mohr Pad. He testified that he did find an area of distressed vegetation downslope from the pits. He stated that ECA retained a consultant, Moody and Associates, to investigate the site and determine a path forward. Moody collected samples from a seep in the area of the dead vegetation and sent them to a lab for analysis. The investigation confirmed that the pit was leaking and that the fluid coming out in the seep was brine that was being stored in the pit. Moody then canvassed a large area around the pad and identified springs, seeps, and any other waterways to sample in order to determine if the pollution had made its way to them. The next step was the installation of monitoring wells and ongoing sampling from those wells to keep an eye on the pollution. Ultimately, the pits were dismantled and the area restored. Once the water was removed, numerous holes were found in the liner.

## VII. The Pollution Problem Grows Larger

After the Mohr Pad incident, DEP began asking questions about other ECA locations, and entered into a Consent Order and Agreement with ECA and Greylock to deal generally with the issue of leaking pits. The consent order dictated a process to be followed to investigate and remediate any pollution. The process revealed that 13 ECA well pads had allowed fluids to escape into the soils and groundwater, in violation of the law. Some of these pads had already been reclaimed by ECA prior to DEP's investigation. Many of them were still in operation with the pits still holding water. Those that had been previously closed included: Blaker Minor, Britner, Broadwater, Coldstream A, Fuller A, Gribble, Hoge Noce, Meadows, Penneco Morrow and Skib

B. Those that were still open and holding fluid included: Coldstream B, Fuller B, Pechin, Sharpnack, Stelco and Whitetail.

ECA retained Moody and Associates to investigate the extent of the contamination at all of the pads and to oversee the remediation at the pads that hadn't already been reclaimed. We heard testimony from several Moody and Associates employees, who explained the process that they undertook to investigate ECA's sites. They initially established and canvassed a zone of interest around each pad. If the pits were still in place on the pad, ECA oversaw the removal of fluids and then Moody inspected the liner for rips and tears and other integrity issues. ECA then had a subcontractor remove the liner and Moody inspected the earth underneath the pad to once again look for evidence of leaks. Moody collected samples and sent them to the lab for analysis. If there was contamination present in the soil, Moody oversaw the removal of the contaminated soil and performed additional sampling to ensure that all contaminated soils had been removed before the former pits were filled in with clean soil. Moody also installed monitoring wells to determine whether or not any of the pollution had made its way to groundwater. For sites that had been closed by ECA prior to Moody's involvement, Moody still established and canvassed a zone of interest around the pad, and used direct push soil sampling to collect subsurface material. Based on the results, monitoring wells were installed at each location. The initial investigation, including the preliminary hydrologic assessment and field reconnaissance, began at the pads in September, 2016, and continued into December, 2016. Installation of monitoring wells and additional investigatory steps occurred after this time frame at many of the locations.

After this initial investigation, Moody determined that the following pads had leaking pits causing soil contamination: Blaker Minor, Broadwater, Coldstream B, Fuller B, Gribble, Hoge Noce, Meadows, Mohr A & B, Pechin, Sharpnack, Skib B, Stelco and Whitetail. At many of the



locations, the contamination had further migrated into ground water. The locations that did not have pits that leaked fluids into the soil included Penneco Morrow, Britner, Fuller A and Coldstream A.

Once pollution was identified at these sites, Moody submitted official reports to DEP called Remedial Investigation Reports. DEP found numerous deficiencies with the reports. As a result, Moody has not drafted or submitted any cleanup plans or final reports for any of the sites, aside from the Mohr A & B and Whitetail pads.

### VIII. Other Illegal Activity is Uncovered

One of the locations investigated under the consent order was the Hoge Noce pad, which had previously been closed and reclaimed. Moody and Associates sampling showed that, despite the reclamation, there was still soil on the site that had been contaminated by waste water.

A former DEP employee testified about the site. She testified that little was known about the construction of the former pits that had been located there, their size, or the waste that had held. By reviewing historical aerial photographs, she was able to determine that one pit, never mentioned in any reports, had disappeared from the location before other pits had been built. A monitoring well installed pursuant to the consent order shows "extremely high concentrations of contaminants of concern at increasing levels." The DEP employee explained that this is concerning because this particular location has been closed for years, and yet the pollution into the groundwater is still getting worse instead of lessening over time. The employee concluded that "whatever remediation was performed was insufficient and there is some source there that is being activated or reactivated perhaps with storm water."

Another witness who testified about the reclamation of the Hoge Noce pad was a former employee of Mohr Excavation & Trucking, a subcontractor that ECA utilized for various construction projects at its well sites. The witness helped clean the sludge out of the bottom of the upper pit after the water had been removed. The sludge was placed into large containers, where additional material was added to reduce radioactivity. The mixture was then periodically measured with a Geiger counter over a period of three months, but testing ceased because ECA was over budget. At that time, ECA buried the remaining sludge on site. Much of the sludge, however, was simply left in the pit – enough to cover 25 feet of the width and the entire length of the pit, to a depth of 4 feet. The cleanup was directed by two ECA supervisors, JD Sollon and Don Supcoe, III. It was JD Sollon who ordered that the remaining sludge be left in place and buried. Once Sollon gave the order, workers cut the liner on the lower end of the pit, “pushed it all back down in there, and corralled everything up against the wall, then covered it in with dirt.” The employee testified that once they cut the liner and peeled it down, he could see black soil underneath the liner. None of that impacted soil was removed. It simply remained in place and clean soil was brought in to fill in the hole. The process of filling in the hole with soil took one day, much less than the time and expense of removing all the sludge, testing it for radioactivity, and then disposing of it.

A Grand Jury search warrant was executed at the buried pit on July 20, 2021. Agents from the Office of Attorney General Environmental Crimes Section arrived on location with direct push soil sampling equipment to take core samples of soil from underground. In addition to collecting samples from suspect locations, the agents collected a background sample from outside the area that was suspected to be contaminated for the purpose of comparison. At approximately 19 to 20 feet underground, the agents encountered pieces of what appeared to be liner as well as a geotextile

material that had been placed underneath the liner. Agents also encountered a black sludge at that same depth and location, as well as at additional locations. These samples were bottled, labeled and sent to the DEP Bureau of Labs for analysis. Lab results detected the presence of chemicals such as 1,2,4 Trimethylbenzene, 1,3,5 Trimethylbenzene, and n-Butylbenzene. Another sample detected the presence of Bis(2-Ethylhexyl)phthalate. A comment from the lab indicated the presence of a petroleum product in that same sample. Several of these compounds are consistent with petroleum-based substances that do not occur naturally in western Pennsylvania. None of these compounds were present in the background sample that was collected outside of the former impoundment.

We heard testimony from a Moody employee who was involved in the investigation at the Hoge Noce pad where various direct push soil samples were obtained from the previously reclaimed pits. She was asked if there was anything unusual encountered during the subsurface investigation. She responded that there were stained soils and elevated conductivity. She explained that Moody hired a subcontractor to perform the actual soil sampling but that a Moody employee was on site during the process. She testified that no one ever communicated to her that any liner or geotextile material was encountered during the sampling event. We reviewed the Field Geoprobe Logs from the sampling event and learned that the average maximum depth that was sampled was a mere 15.8 feet below ground surface. Thus, it is not surprising that the sampling event did not encounter liner or geotextile material because the probe was not going deep enough underground.



## IX. Impact on Neighbors

The criminal statutes at issue here do not require proof that ECA or Greylock's actions caused any health impacts to people living in the vicinity of the activity. Rather, the statutes are designed to protect against the risk of adverse effects on the general health, safety, and welfare of the community. The experience of one neighbor demonstrates the consequences of ECA's conduct at one of its former well pads.

One individual testified before us who lives downslope from one of ECA's well pads in Greene County. He testified that he purchased property in December, 2007 that included a mobile home that had two springs as the water source. He has since purchased additional surrounding acreage so that he now owns 138 acres. When he purchased the property, there was no unconventional activity on or around the property. He and his wife subsequently built a home on the property and had a water well drilled to supplement the springs that were the original water source to the mobile home that was on the property. He testified that the family would prefer to drink the spring water as opposed to the well because it was of a better quality. The family's long-term plan includes starting a farm on the property. In early 2012, ECA proposed to build two different well pads within the zone of presumption<sup>14</sup> of his water supply and offered to sample the water supplies to establish a pre-drill baseline. Neither of these pads was on his property and so he had no ability to prevent the construction of either. The first that he knew that construction had begun in the fall of 2012 was when he heard equipment on the hill behind his house. The noise prompted him to walk up the hill and see that a massive construction project was underway.

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<sup>14</sup> The Oil and Gas Act includes a section entitled "Protection of Water Supplies", 58 Pa.C.S.A. § 3218 (formerly 58 P.S. §601.208). The statute creates a rebuttable presumption of liability for operators where there is an impact to a water supply within a certain radius and within a certain time frame of activity on the well pad. It originally applied to water supplies within 1,000 feet of the well pad and for pollution that occurred within 6 months of drilling or altering a well. It was amended on April 16, 2012 to apply to water supplies within 2,500 feet of the well pad and for pollution that occurs within 12 months of completion, drilling, stimulation or alteration of a well.

Construction on the pad was completed and then wells were drilled on the site. At the same time, two pits were built into the rock on the site to store the wastewater. Within a few months' time, the pits were full of water. He made observations over the next several years of the varying water levels within the pits until the fall of 2017 when he noted that they were nearly empty. His observations included trucks arriving at the site to put water into the pits and to pull it out over the course of all of the years that it was in existence.

The neighbor testified that during the time that the pits were in use on the site, no one was testing his water. His family drank water from their well and used the springs to water their gardens. On June 13, 2017, however, Moody and Associates requested access to the property to take some water samples. In August 2017, a DEP employee told him that ECA had reported that there was a hole in one of the liners for the pit on the well pad. He learned that ECA had been aware of problems since May, 2017. He began to question the water quality of his springs and well. Because of his concerns, he sent a certified letter to the company, demanding to know what was going on at the well pad. ECA contacted him for the first time on August 17, 2017, but did not offer to provide a substitute water supply. He received initial sample results from Moody, indicating that chloride levels in his springs had jumped up significantly—from being undetected to having numbers in the one or two hundreds, which was a sign of potential contamination from oil and gas activity. Once he knew that his springs had been contaminated, he stopped using them to water his gardens. He asked ECA for a permanent replacement for this particular water supply. Don Supcoe, III, told him that he would have to file a formal complaint with DEP. Once that formal complaint was made, Greylock (which by this time had acquired ECA's assets) offered a temporary water supply, but stated that it was not required to provide a permanent supply because the family did not use the springs as its primary source of water.

Ultimately, the neighbor agreed to a financial payout for the contamination because he had been told that the contaminates in the springs should clear up in a year or two. But the contamination in the springs persists.

## X. Problems Continue Under Greylock Management

The Grand Jury also learned of more recent issues at a newer well pad. The Beacon Well Pad was built in 2019 in Greene Township, Greene County, Pennsylvania and has been operated by Greylock. A DEP inspector testified that the site was constructed improperly and “literally thousands of violations.”

According to a DEP Surface Activities Inspection Report, a spill on the Beacon Pad was reported on February 10, 2020. Greylock acknowledged that while drilling, the company was using a “filming agent<sup>15</sup>” and that foam from an open topped tank blew onto the well pad and then traveled to the pad’s drainage ditches through a failed seam in the containment. The foam then traveled to the sediment basin on site and then into an unnamed tributary to Frosty Run. An inspection of the site occurred on February 14, 2020, at which time the sediment basin was overflowing and the stream was laden with multiple large piles of foam.

During a subsequent inspection, a DEP inspector discovered subcontractors spraying a material onto rock above the mouth of the stream. They stated that they had been directed to spray laundry soap or fabric softener onto the rocks. A Greylock employee then stated that the spray was actually a defoaming agent. The agent, however, is not properly used in aquatic environments, and was not approved for use here by DEP. Moreover, the defoamer merely eliminated bubbles

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<sup>15</sup> The identity of this agent is unknown because the Oil and Gas Act only requires a company to disclose chemicals used during the hydraulic fracturing process and not during drilling. (See 58 Pa.C.S.A. §3222.1, Hydraulic Fracturing Chemical Disclosure Requirements)



on the surface from the previous spill; it did nothing to assist with removal of the chemical properties of the surfactant from the water. By applying the defoamer, Greylock removed the visual evidence of the impact to the stream and in so doing, further impacted the stream. Without the foam on the surface, no one would know if the water quality was threatened unless a sample was taken and sent to a lab. Company employee Don Supcoe, III was on site for an inspection and stated that, because Greylock owns the property on which the Beacon site sites, it owns the streams on the property and they "like them that way." Pennsylvania law does not give property owners the freedom to pollute waters of the Commonwealth.

Greylock hired Moody and Associates to conduct an investigation into this spill at the Beacon Pad. Moody collected samples from the sediment basin as well as the unnamed tributary to Frosty Run on February 11, 2020. Subsequent analysis of these water samples showed the presence of methylene blue active substances (MBAS<sup>16</sup>) in both the sediment basin and the unnamed tributary. Analysis also showed the presence in the sediment basin of propylene glycol, a compound that is present in drilling fluid surfactant. Moody continued to collect water samples on a weekly basis and confirmed that the MBAS and propylene glycol levels in the water decreased to levels that were non-detectable at the lab.

## XI. DEP evidence

Finally, we reviewed a Certification of Records from DEP to confirm that ECA and Greylock never applied for or were granted a permit or an exemption to a permit pursuant to the Solid Waste Management Act or the Clean Streams Law to dump or deposit any waste from any source at or near the Beacon, Blaker Minor, Britner, Broadwater, ColdStream A&B, Fuller A&B,

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<sup>16</sup> MBAS are anionic surfactants, such as detergents or foaming agents.

Gribble, Hoge Noce, Meadows, Mohr A&B, Pechin, Penneco Morrow, Sharpnack, Skib B, Stelco, or Whitetail sites in Greene and Clearfield Counties, Pennsylvania, or to discharge any waste from those sites into any waters of the Commonwealth.

## XII. 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 6018.301 makes it a crime to store, transport, process or dispose of residual waste unless it is consistent with or authorized by the rules and regulations of the department. It further criminalizes the ownership or operation of a residual waste processing or disposal facility unless a permit has been obtained from the department. 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. Section 6018.610(2) makes it a crime to construct, alter, operate or utilize a solid waste storage, treatment, processing or disposal facility without a permit from the department or in violation of the rules or regulations adopted under this act or orders of the department, or in violation of any term or condition of any permit issued by the department. Section 6018.610(4) makes it a crime to dispose of solid waste in any manner that adversely affects public health, safety and welfare. And

Section 6018.610(7) criminalizes refusing, hindering, obstructing, delaying or threatening any agent or employee of the department in the course of performance of any duty under this act, including, but not limited to, entry and inspection under any circumstances.

We also reviewed the various statutory provisions within the Clean Streams Law that are pertinent to our investigation. Section 691.301 makes it a crime to discharge industrial waste into the waters of the Commonwealth. Section 691.401 prohibits putting, placing, allowing or permitting to be discharged into any waters of the Commonwealth, any substance of any kind or character resulting in pollution. Section 691.611 makes it a crime to fail to comply with any DEP rule, regulation or permit, to fail to comply with any order or permit or license of the department, to violate any provisions of the Clean Streams Law to cause air or water pollution, or to hinder, obstruct, prevent or interfere with the department or its personnel in the performance of any duty.

We find that ECA's failure to adhere to the regulations that were applicable to its activities allowed contaminants to enter into the soil and groundwater in the area. We find that Greylock's activities once it purchased ECA's assets perpetuated these problems.