January 10, 2013,

Dear Resident,

Seneca Resources Corporation, the exploration and production segment of National Fuel Gas Company, with local offices in Brookville and Kane, explores for, develops and purchases natural gas and oil reserves in the Appalachian Region, and we are the largest mineral owner in Elk County.

We are a 100-year old Pennsylvania company that operates more than 3,000 shallow wells in the western regions of New York and Pennsylvania. In total, Seneca controls nearly one million acres located throughout the Appalachian Basin in both states.

As you may be aware, the U.S. Environmental Protection Agency (EPA) held a public meeting in James City on Dec. 11, 2012 to review plans by Seneca Resources to covert a local production well into a Class II injection well.

Over the past several months, Seneca Resources prepared presentation material anticipating an open and active dialog with the public. However, the EPA permit process restricted us from distributing this material or conducting public meetings before the EPA hearing on Dec. 11.

There were several questions raised during that public event, and we are writing today to help answer as many of those questions as possible prior to a Seneca sponsored public meeting that will take place in late January or early February.

Please review the attached "frequently asked questions" document. Additional questions can be submitted at InjectionWellInfo@srcx.com and we will try to provide any outstanding answers at the next public meeting.

Sincerely,

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FAQs for James City area residents

Why hasn't Seneca provided more information about this project?

Over the past several months, Seneca prepared presentation material anticipating an open and active dialog with the public. However, the Environmental Protection Agency (EPA) permit process restricted Seneca from distributing this material or conducting public meetings before the EPA hearing on December 11, 2012. Consequently, we are pleased to now engage the public in a dialog regarding this project.

Is Seneca going to have a public meeting to answer questions from area residents?

Yes. First, we're distributing this FAQ document to answer as many questions as possible and to provide written material in advance of a public meeting. Our hope is that this will result in a more productive meeting where Seneca will describe the project in detail and answer questions from the public. It's very important to Seneca that the public understand this project and it's our desire to be very open in that regard. That public meeting is anticipated to occur in late January or early February 2013.

Why did Seneca select this area to utilize for water injection?

Seneca conducted a two year study across our nearly 700,000 acres of owned and leased acreage in Pennsylvania to locate reservoirs with the appropriate conditions for injection. After a rigorous search, our geologists and engineers determined that the Elk 3 Sandstone reservoir near James City has the proper parameters for safe disposal of produced water. Seneca selected this area for water injection because it's close to our production assets and will minimize truck traffic on public roads, we own the surface and mineral rights, and it is easily accessible from Rt. 66. It's important to note that although this is the first well that Seneca is permitting for water injection, we anticipate permitting various injection wells at different locations across our acreage to handle produced waters in those areas, again minimizing truck traffic on public roads.

Why did Seneca select this particular well to utilize for water injection?

Seneca selected this particular well (#38268) because it penetrates a thick, high quality gas reservoir called the Elk 3 Sandstone. The same qualities that made it a prolific gas producer, such as the amount of pore space and the ability of fluid to pass through those interconnected pores, make it a strong candidate for water storage. We also chose this well because we drilled it less than six years ago and we are confident that the well has solid mechanical integrity.

How will this well be constructed to protect shallow aquifers?

This well is a producing gas well, drilled in March 2007. There is already a 7" diameter pipe called the "Surface Casing" in place which protects the underground sources of drinking water (USDWs). This pipe, extending approximately 550 feet deep, was installed only six years ago and was cemented in place from top to bottom to protect all shallow aquifers.

In order to convert this well to an injection well, we will install two additional layers of protection in this well to make sure that all shallow aquifers are protected. An additional steel casing, in the form of a 2,330 foot long 4-½" diameter pipe, will be installed directly above the Elk 3 Sandstone (the injection zone). This pipe will be cemented in place along its entire length all the way back to surface. A 2-7/8" steel tubing pipe, approximately 2,330 feet long, will fit inside the 4-1/2" casing. The injection fluid will travel down the wellbore inside this 2-7/8" tubing and will only be allowed to exit at the injection zone (Elk 3 Sandstone). The tubing will be secured inside the casing near the bottom, using a mechanical device called a packer, which acts like a cork or washer. It prevents the injected fluid from traveling back up the well between the 2-7/8" tubing and the 4-1/2" casing and it protects the 4 -1/2" casing from pressure exerted by the injected water and from corrosion. The 2-7/8" tubing pipe is designed to be easily replaced if necessary. It keeps the injection fluids at the injection zone.

There will be 3 solid steel pipes, 2 layers of cement, and a mechanical packer to keep the injection fluid isolated to the Elk 3 Sandstone at 2,350 feet deep, and 1,900 feet away from the USDW. Please see the attached Figures 1 and 2 for a map of the area and a cross section through the area for more information regarding the geology of the area and details regarding the construction of the well bore.

Seneca will install gauges at various locations within the well to continuously monitor pressures within the wellbore and between the pipes to detect any unexpected gas or water migration.

How much water will be disposed in this well per day and for how long? Will the same amount be injected every day? What pressure is allowed for injection?

According to the EPA Draft Permit issued on December 7, 2012, the maximum allowed injection volume would average 1,500 barrels or about 15 truckloads per day. There will be daily variation and some days there may be no activity at all.

The maximum injection pressure could be up to 1,416 pounds per square inch (psi); however typical injection pressures will be much lower. This maximum pressure is determined to set a threshold used to prevent fracturing of the Elk 3 Sandstone. Produced water injected into the formation will always be injected at pressures lower than the established threshold.

What zone will be used for injection and how deep is it? How close is this injection zone to the fresh water aquifers?

The Elk 3 Sandstone will be used for injection. The reservoir is located approximately 2,300 feet below the ground surface and 1,900 feet below the deepest fresh water aquifer. To put it in perspective, the Empire State Building in New York City is 1,250 feet tall.

What prevents water from leaving this zone and going to shallower aquifers?

As mentioned above, there are 1,900 feet of shale, siltstone, and sandstone between the Elk 3 Sandstone (injection zone) and the freshwater aquifers. There is a 30-foot thick dense shale directly above the Elk 3 sandstone that acts as the primary "cap rock" for the Elk 3 Sandstone, but in essence, all of the layers act together as a barrier to prevent the vertical migration of gas or water from the Elk 3 Sandstone upward to the fresh water aquifer. It is these same layers that have prevented the natural gas from migrating from the Elk 3 sandstone for millions of years.

As mentioned above, the injection pressure will be limited to prevent fracturing the Elk 3 Sandstone. Additionally, monitor wells that are adjacent to the injection well will be utilized to monitor fluid levels in the Elk 3 Sandstone to further protect shallow aquifers (see additional comments below).

How far will this water travel underground?

Seneca hired an engineering consulting company that used an EPA-approved model and the facts known about the Elk 3 Sandstone reservoir, as well as the assumption that the well would be used at full capacity (average of 1,500 barrels per day) every day, to calculate the distance that the injected water would travel during the 10-year permit life. This calculation showed that over ten years, the injected water would travel 1,350 feet laterally from the wellbore.

This is a conservative estimate, because the limiting factor on how much water will be injected is the pressure at which the water is injected, not the volume. Consequently, if the maximum pressure is experienced during the 10-year permit life, water injection will be discontinued early.

How will the "monitor" wells be used?

Seneca has selected two nearby gas wells that penetrate the Elk 3 Sandstone to monitor the flow of injected water in the reservoir. One well (#38281) is 1,100 feet southwest of the proposed injection well, and the other well (#1144) is 2,050 feet northwest of the proposed injection well. Seneca will monitor both surface pressure and the water levels in these monitor wells on a regular basis. The water level readings, taken with a device called an echometer, will help us determine if water injected at the disposal well is present in the monitor wells and the depth at which it is present. Water levels in these wellbores must be at least 100' deeper than the deepest area fresh water aquifer or injection operations must cease, thus preventing potential migration of injected water into fresh water aquifers.

What has Seneca done to locate old, abandoned wells in the area?

Seneca researched internal maps and well records as well as Pennsylvania Department of Environmental Protection (PADEP) records to locate all potential wells (water and oil/gas) within one mile of the proposed injection well. From that record search, we created a map showing these possible locations. Our surveyor went into the field to verify the location of each well. If the well was not immediately visible, he used a metal detector to search within a 300 foot radius for the steel wellhead. Figure 3 is the map that was generated during this process. The well symbols indicate wells that potentially exist in the area based on the records that were searched. The green and gray circles indicate whether an individual well was located by the survey crew. Note that even though some wells were not located by the surveyor, due to the age and accuracy of some of the drilling records it's possible that a well was never drilled at that location in the first place.

Seneca acknowledges that there may be additional orphaned or abandoned wells within one mile of well #38268 that we have not yet identified. Therefore, Seneca asks the public to send location information for gas wells on their property, if it is located within one mile of well #38268. We will send our surveyor to the field to obtain precise GPS coordinates and photographs of the well. If it is a well that we have not previously identified, we will notify PADEP of its location and condition.

The PADEP maintains a list of all orphaned and abandoned wells in Pennsylvania. Seneca will forward information about any abandoned well that we found during this process to the PADEP.

Where is this water coming from?

Approximately 4 truck-loads per day will come from the extensive shallow well development program that Seneca has operated for decades in western PA. The remaining water will come from our Marcellus development, generally on the same acreage where we have drilled shallow wells for decades.

How much truck traffic will this create?

If utilized to the maximum, there would be an average of 15 water truck loads per day. This type of traffic is already common on Rt. 66 and there are no homes along the access route to the injection well after the trucks leave Rt. 66.

What chemicals are in the water?

Simply put, our produced water is concentrated sea water, but up to 8 times the salt concentration of seawater. Otherwise, concerns are typically raised regarding "added chemicals" that we use to frac the wells. It's true that over 99% of our frac constituents are water and sand, but significant quantities of additives are used because of the large volume of water used in the frac. All chemicals, in everything we do in our daily lives, need to be handled properly and this issue is no different, but here's a general look at what we use in our fracs and why.

One of the added constituents is Hydrochloric acid, used to pre-treat the rock, but it is quickly neutralized in the shale with produced water that is typically alkaline. There is no show of acidity when water returns to the surface. We also use a friction reducer that allows us to pump water at a rate that will fracture the shale. This is primarily an "acrylamide," which has the same health and handling cautions as many household cleaning products, but the key here is that acrylamides decompose rapidly in the shale water environment to form ammonia; further breaking down from there. Scale inhibitors are also used to protect the integrity of the well bore, with methanol being the largest component. A common everyday use of methanol is windshield washer fluid. The other primary chemical additive in the frac water is a biocide, used to prevent unwanted bacterial growth in the shale reservoir. Biocides range from the same bromine based biocides individuals use in everyday applications like hot tubs, to "glutaraldehyde" additions that are also used as disinfectants for medical and dental equipment. Both products decompose rapidly and are not present in our actual production water.

Seneca has created a Material Safety Data Sheet (MSDS) for produced water. That MSDS is available and will be distributed to local emergency response personnel so that they can keep it on file, along with other MSDS information that is already on file, to assure they are familiar with any chemicals that they may encounter during an emergency response.

Is the water radioactive?

There is a misconception that the waters to be injected in the well are "radioactive" at a dangerous level. Radiation is a part of our everyday lives and this water is no exception as it contains what is known as NORM, or Naturally Occurring Radioactive Material. We are exposed to radiation through things you may not think about such as smoking, brick homes, or granite countertops. To put this in perspective, if an individual stood next to a tank of our produced water 24 hours a day for 365 days in a row, they would be exposed to approximately one-half of the radiation that is absorbed through the air we breathe. It's also equivalent to less than two times the radiation experienced from proximity to a granite kitchen countertop.

What happens if there is a spill at the injection location?

All produced water will be stored in steel tanks as primary containment. These tanks will be inside of secondary containment to further manage any potential spills. This practice is mandated and overseen by the PADEP and Seneca employs it at every location. In the unlikely event of a failure of both containments, the site is generally level which would keep the fluid on location. Additionally, this well is located on the south side of the hill above Crystal Mineral Springs. Should a release of water occur at the proposed injection well, that water would flow south and away from the springs, not toward the springs.

Are there spill plans in place for this situation?

Seneca maintains spill prevention and contingency plans for all activities, including brine management, with such plans on location and on file with the PADEP. All employees are trained in the proper protocol in the event of a spill. Although no additional emergency response would be needed from the local community, the spill prevention plan is available to local emergency responders.

What equipment will be at the injection location?

The equipment involved will not be overly obtrusive. We anticipate approximately six to twelve water tanks, set in proper containment (and secondary containment) per PADEP regulations. The truck unloading area will be a concrete pad, drained to a sump area, to catch any possible spills during the connecting/disconnecting process. There will also be a small pump house, approximately 20'x60', to house the two injection pumps and filtration skids. Other equipment will be the connection piping from the tanks, to the pumps, to the wellhead. The entire facility will be surrounded with security fencing.

How often will Seneca check for leaks?

Any time that injection is taking place, there will be personnel on location monitoring all equipment. A computer installed at the well location will monitor all significant data during injection. The data from this device can be viewed "real time" while sitting at the desk in the pump house or at our main office. These devices are capable of "automatic shutdown", for various parameters such as high pressures, high fluid levels in tanks, pump pressures and temperatures, etc. The goal is to have equipment (mainly the pumps) shutdown in the event of any pre-set limits being approached. These shutdown devices cannot be re-started until the alarms are inspected and cleared by our personnel at the site.

Is Seneca going to test area water wells before injection begins?

While there is no requirement to do so, Seneca feels strongly about providing the area's residents with both a baseline quality analysis of their individual water supplies as well as a more comprehensive analysis of the public supplies than is required of the Authority. Seneca will contact everyone within a one-mile radius of the injection well offering to test their water. Testing will be conducted at no cost to the individual and the results from the certified lab will be sent directly to the landowner. Within the actual town of James City, Seneca will offer to test any individual water wells whether or not they are within the one-mile radius.

Is Seneca going to pay for periodic testing of the James City water supply?

Seneca will coordinate with the Water Authority to conduct regular tests of the water supply at Seneca's expense. The parameters to be tested for and the protocol for testing can be mutually decided in cooperation with the James City water authority.

Is Seneca responsible for problems that may result from these injection activities?

Absolutely, Seneca is responsible. Both the EPA and PADEP have enforcement authority and both would look to Seneca to solve any problems that are caused by Seneca's actions. The bottom line is that Seneca is a reputable company that takes immediate responsibility for any potential problem and would do so here even if it was not required by the EPA and PADEP.

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