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Concerning the Constitutionality of Hydro-Fracking
the Marcellus Shale

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Overview

The presence of vast amounts of natural gas contained within the Marcellus Shale coupled with the modern technological means to extract this prized natural resource has sparked an intense debate among citizens living in the Southern Tier of New York, New York City and other neighboring states. The entire Marcellus Shale, from the Catskills of New York down to the northwestern border of West Virginia, is estimated to contain as little as 168 to as much as 516 trillion cubic feet of natural gas, resulting in major “shale play” in the region.¹ If these calculations are accurate, the Marcellus Shale would represent one of the largest potential sources of any type of energy in this country.² The prospect of mining the Marcellus Shale may be the East Coast’s version of a 21st century gold rush. Scores of individuals and energy corporations alike are flocking to these coveted areas for the purpose of capitalizing on these potential mining rights. And so on one side of the debate are those who claim that the mining operations

¹ *Marcellus Shale – Appalachian Basin Natural Gas Play*, 2010, <http://geology.com/articles/marcellus-shale.shtml>.

² Navigant Consulting, Inc. (2008). *North American Natural Gas Supply Assessment*, Prepared for: American CleanSkies Foundation.

would help end the United States' dependence on coal and oil, boost the local economies of the communities harboring those activities, increase those communities' tax base and enrich those owners whose property fortuitously lays atop the Marcellus Shale.

But the prospect of mining the Marcellus Shale is not without its downfalls. The extraction method that would be used in these operations - a technique called hydraulic fracturing or "hydro-fracking" for short - may have dire environmental consequences to the constitutionally protected Forest Preserve of the Catskills, the New York City Watershed and other sensitive ecosystems often visited by tourists. Because maintaining the New York City Watershed - as well as their hydrologically related aquifers - in a pristine and pure state is of absolute importance in maintaining both the Catskill tourism industry and the overall State economy, any potential adverse environmental fallout caused by hydro-fracking operations would ultimately prove disastrous to the State of New York.

Contamination of groundwater both within and outside the NYC watershed is but one of the many likely environmental repercussions associated with hydro-fracking, but it is clearly the most concerning. Due to the potential environmental fallout associated with hydro-fracking operations, query as to whether Article XIV of the New York State Constitution (popularly known as the "forever wild" clause) would or even should permit the hydro-fracking operations has heretofore been inadequately addressed. With the stakes in the

Marcellus Shale being so immeasurably high, it would seem inevitable that disputes would arise concerning not only the *actual* right, but merely the *prospective* right to mine natural gas within the Marcellus Shale formation.

Though legislation by the State imposing a moratorium on permit issuance for the right to mine the Marcellus Shale³ was recently vetoed and subsequently modified by an executive order from former Governor Paterson (which limits the moratorium to horizontal drilling operations⁴ and is in effect until the summer of 2011), litigation concerning prospective Marcellus mining rights has nevertheless surfaced. *Kutalek v. Studer*⁵ involved a breach of contract concerning the sale of real property which was situated atop a portion of the Marcellus Shale. After the contract was signed but before its execution, defendant learned of the prospective mining rights attached to the recently sold real property and thereafter sought a renegotiation of the terms of the contract. However, plaintiff was not as eager to renegotiate the terms of the contract as the defendant was. When defendant refused to close on the deal, plaintiff brought an action seeking specific performance of the contested real estate contract.

The Supreme Court of Broome County ultimately found for plaintiff, finding *inter alia*, that a valid contract existed between the

³ NY Spons. Memo., 2010 A.B. 11443 (2010).

⁴ Peter Appleboom, *On Drilling Paterson Pleases Both Sides*, N.Y. Times, December 12, 2010, at A17.

⁵ *Kutalek v. Studer*, 26 Misc.3d 1217(A), 907 N.Y.S.2d 101 (S. Ct. 2009).

parties and that the contract was in compliance with the Statute of Frauds.⁶ Consequently, defendant was forced to sell the property at a fraction of its worth. If only defendant knew that his property was fortuitously lying atop one of what could North America's grandest reserve of natural gas.

The *Kutalek* case is but a glimpse into the economic stakes concerning the supposed colossal amounts of natural gas within the Marcellus Shale formation. Many competing interests are in play here, including those of individual property owners such as the defendant in *Kutalek*; the various counties and towns overlaying the Marcellus Shale; the State of New York as well as New York City; energy corporations and the industry as a whole; various state and federal agencies including the United States Environmental Protection Agency (EPA), the New York State Department of Environmental Conservation (DEC) and the New York City Department of Environmental Protection (DEP). All of the parties' interests in this Marcellus shale play are fundamentally economic in nature; and yet, all of these economic interests also happen to be intimately tied with a unique environmental interest: the "Forever Wild Clause" of the New York State Constitution.

Because proposals for mining the Marcellus Shale have constitutional implications that go beyond solely private financial interests, questions as to whether Article XIV should be amended by

⁶ *Kutalek* at 102.

either by weakening or strengthening its provisions; or alternatively, whether Article XIV should instead be repealed outright, have logically arisen. But before a decision should be made on whether New York ought to amend or repeal Article XIV, it is important to understand the purpose behind the Forever Wild Clause.

History of Article XIV and its Purpose

In response to the unsustainable forestry practices of nineteenth century timber companies, which resulted in massive deforestation within the Adirondacks, the people of the State of New York sought to better protect these unique and picturesque forested areas for the greater good of the New York public. This goal ultimately culminated in the adoption of Article XIV to the New York State Constitution by the 1894 Constitutional Convention. Yet Article XIV was preceded by a series of failed statutory provisions originally adopted to achieve the very same objective. Though flawed, these statutes were nevertheless influential in the protection of the Adirondack and Catskill forested regions.

The first failed attempt to protect the Adirondacks through statutory provision was the enactment of an 1885 law, which created the concept of the State “Forest Preserve.” The 1885 law also created a Forest Commission to be comprised of three individuals who were charged with overseeing the Forest Preserve’s daily operations. According to popular scholarly opinion, this statute was heavily flawed

being marked by a striking lack of guidance as to how the recently appointed commissioners should actually “manage” the timber within the Forest Preserve.⁷ It has been posited that the 1885 law merely perpetuated those unsustainable forest practices within the Adirondacks that the public wished to expunge in the first place.

After the failure of the 1885 law came an 1892 law, which created what is known as the “Adirondack Park,” as well the famed “blue line,” a designated area of state owned land to be “forever reserved . . . for the use of all the people.”⁸ While the 1892 statute was a mark of progress, the statute was ultimately undermined the following year when a contravening law was passed. This law established a five member committee, and granted this committee the authority to sell timber originating from anywhere within the Forest Preserve.⁹ As if that bit of confusion was not enough, the law also failed to adequately describe which lands ought to be included in the Adirondack Park. Unquestionably, a law that reserved the use of the Forest Preserve for the public is irreparably compromised by the passage of a second, contravening law which vests a committee with power to convey or otherwise dispose of the trees located within that very Forest Preserve. Thereafter, it became clear that an amendment to the State

⁷ Frank Graham Jr., *The Adirondack Park: A Political History* (1978).

⁸ *Id.*

⁹ Paul M. Bray, *Liberty of the Community: Addressing an Age-Old Conflict*, NYSBA Government, Law and Policy Journal, Spring 2010, Vol. 12, No. 1 at pg. 59

Constitution was the optimal option in order to achieve maximum protection of these prized wild areas.

The passage of Article XIV came about as a result of New York's unique amendment system; a system arguably adopted for the purpose of managing the State Constitution in light of contemporary normative values. There are two methods that exist for the people of New York to amend the State Constitution. The first method requires "[p]assage of a proposed amendment by majority vote of the legislature in two sessions with an intervening election, and ratification by a majority of the voters at a general election. . ."¹⁰ The second method of amending the State Constitution is through a democratic body, a group of legislators known as a constitutional convention.

The Constitution further requires that the question of whether to hold a constitutional convention 'to revise the constitution and amend the same' be placed on the ballot every twenty years. If a majority of voters at the general election agree, a constitutional convention is formed.¹¹

This second method was how Article XIV came to be adopted by the 1894 Constitutional Convention and Article XIV took effect on January

¹⁰ Peter J. Galie, *When is Constitutional Revision Constitutional Reform? Constitutional Development in New York*, NYSBA, Spring 2010, Vol. 12., No. 1. See also N.Y. CONST. art. XIX.

¹¹ N.Y. CONST. art. XIX.

1, 1895. Unquestionably the most important (as well as most quoted) portion of Article XIV states:

The lands of the state, now owned or hereafter acquired, constituting the forest preserve as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold or exchanged, or be taken by any corporation, public or private, nor shall the timber thereon be sold, removed or destroyed.¹²

David McClure, the former chairman of the Special Committee on State Preservation, stated the purpose behind the language of Article XIV succinctly. In a report dated August 23, 1894, David McClure wrote “that it is necessary for the health, safety and general advantage of the people of the State that the forest lands now owned by and hereafter acquired by the State, and timber on such lands, should be preserved intact as forest preserves, and not, under any circumstance be sold.”¹³ Likewise, the Hamilton County Supreme Court reiterated Article XIV’s seminal maxim:

“The Adirondack Park was to be preserved, not destroyed. Therefore, all things necessary were permitted, such as measures to prevent forest fires, the repairs to roads and proper inspection, or the erection and maintenance of proper facilities for the use by the

¹² N.Y. CONST. Art XIV.

¹³ Alfred S. Forsyth, *The Forest and the Law*, The Sierra Club, The Association For The Protection Of The Adirondacks, The Adirondack Mountain Club (1970).

public which did not call for the removal of the timber to any material degree.”¹⁴

Thus, Article XIV mandates that designated forested areas in the Adirondacks as well as the Catskills are to remain just that, forests in the most natural sense of the word and timber is only to be cut in furtherance of this express purpose.

With the purpose behind the creation of Article XIV in mind, the natural question to then ask would be whether Article XIV would permit the sort of mining and drilling operations that would be necessarily involved in the extraction of natural gas from the Marcellus Shale. As of this writing, the answer to this question depends upon where in the Forest Preserve the hydro-fracking operations would be situated.

Attorney General Opinions

While the State may lease publicly owned lands for oil and gas exploration and development, the same is not true of public lands falling within the constitutionally protected lands constituting the Forest Preserve.¹⁵ If the proposed site of the hydro-fracking mining

¹⁴ *Helms v. Reid*, 90 Misc.2d 583 at 596, 394 N.Y.S.2d 987 (N.Y.Sup. 1977). quoting *Asso. for the Protection of the Adirondacks v. MacDonald*, 228 App.Div. 73 at 77, 239 N.Y.S. 31 at 36 (Third Dept., 1930), aff'd 253 N.Y. 234, 170 (N.E. 902).

¹⁵ ECL § 9-0101(6): The “forest preserve” shall include the lands owner of hereafter acquired by the state within the county of Clinton, except the towns of Altona and Dannemora, and the counties of Delaware, Essex, Franklin, Fulton, Hamilton, Herkimer, Lewis, Oneida, Saratoga, Saint Lawrence, Warren,

operation were to be located on State owned Forest Preserves lands within the protected blue line of the Catskill Park, then overwhelming authority in the form of Attorney General opinions suggest that such activity would be unconstitutional under Article XIV of the State Constitution.

In 1954, the New York State Attorney General was presented with a question by a State agency regarding the scope of Article XIV. Specifically, the then Attorney General was asked whether the New York State Department of Conservation (DEC), under the authority granted to them under Environmental Conservation Law (ECL) § 3-0301 and § 9-0105,¹⁶ could constitutionally issue a permit to a gas and oil company that intended to drill for gas and oil on public land located within the town of Shandaken, in Ulster County. The land had been acquired by the State and became part of the “Catskill Park” as defined by § 63 of the ECL.

After consideration of prior opinions written by his predecessors in office, New York State Attorney General Nathaniel L. Goldstein concluded that any mining whatsoever conducted on lands within the territorial bounds of the Forest Preserve was an unconstitutional act. In reaching this conclusion, the Attorney General equated oil and gas

Washington, Greene, Ulster and Sullivan, except: a. Lands within the limits of any village or city; b. Lands not wild lands and not situated within either the Adirondack park or the Catskill park acquired by the state on foreclosure of mortgages made to loan commissioners; and c. Lands acquired under the provisions of [sections 9-0107](#) and [9-0501](#).

¹⁶ DEC granted the authority to make rules and regulation for the Forest Preserve.

with other natural resources such as timber, coal, iron and salt; the mining of the latter having been determined by previous Attorney Generals to be unconstitutional.¹⁷ Previous Attorney General opinions held that so long any mineral remained beneath the surface in its natural and unadulterated state, that mineral was in fact part in parcel with the real estate itself. The Attorney General then opined that so long as this condition is met, the minerals were considered to be part of the land itself.¹⁸ Consequently, since Article XIV prohibits the alienation or leasing of public lands within the blue lines of either the Adirondack or Catskill Forest Preserves, leasing or otherwise permitting mining rights of any kind within these areas was constitutionally impermissible.¹⁹ In sum, mining within the blue line boundaries of the Forest Preserve is an unconstitutional act.

On the other hand, a different constitutional and statutory standard exists for the issuance of permits when the situs of the State owned land falling outside the blue lines of the Forest Preserve.²⁰ Attorney General Goldstein articulated in a 1950 opinion that Article XIV § 3, which deals with forest and wildlife conservation, did not apply to State lands lying outside of the blue line.

¹⁷ See 1934, Op.Atty.Gen.282 (Conservation Department lacked the constitutional authority to issue any permits for the purpose of mining for gold within the Forest Preserve, despite the fact no trees would be cut down or otherwise destroyed.); 1943, Op.Atty.Gen.428 (Commissioner of Allegany State Park lacked the authority to lease State Park lands where lessee had the intention and permission to withdraw oil and gas from leased land).

¹⁸ N.Y.Op.Atty.Gen. No. 170 (1954).

¹⁹ *Id.* at 171.

²⁰ [People v. Adirondack Ry. Co., 160 N.Y. 225, 54 N.E. 689 \(1899\).](#)

[L]ands outside the Adirondack and Catskill Parks but within the Forest Preserve counties as listed in Conservation Law § 63, subdivision 1, which lands have either been or may be acquired for the practice of forestry, are not subject to those provisions of Constitution Article 14, § 1, which require Forest Preserve lands to be forever kept as wild forest lands and forbid the timber thereon to be sold, removed or destroyed.²¹

In this opinion, Attorney General Goldstein was responding to a query by the DEC concerning the agency's constitutional and statutory power²² to issue permits to County authorities for the construction and maintenance of radio towers on State lands located within the Forest Preserve, but outside the blue lines of the Adirondack and Catskill State Parks. These lands had been acquired by the State for the purpose of practicing forestry and wild life management. The County Authorities wished to construct the radio towers for the purpose of preventing forest fires, in accordance with the "Mutual Aid Program"

²¹ N.Y. Op.Atty.Gen. 148 at 1. (1950).

²² ECL § 50, Subdivision 15 charges DEC with the duty to maintain a forest fire protection program; ECL § 50, subdivision 27 grants DEC the authority to issue permits for temporary uses on Forest Preserve lands; ECL § 50, Subdivision 32 allows the DEC to enter into cooperative agreements with local governments for the purpose of protecting the Forest Preserve from fires; ECL § 23, local law regulating gas and oil exploration and production superceded by State law.

law.²³ The Attorney General's opinion regarding the matter was quite clear.

Attorney General Goldstein noted that Article XIV § 3 still forbade the alienation or leasing of state lands acquired by the State for forestry and wild life management, regardless of whether the situs of such lands fell within or without State Park boundaries. Yet according to Attorney General Goldstein, the issuance of a revocable permit is not synonymous with the alienation or leasing of the land, since the DEC could revoke the permit at will at any time they choose. Furthermore, the primary purpose behind the construction of the radio towers was to comply with the provisions of the Mutual Aid Program, a program implemented to prevent forest fires. Thus, by permitting the construction of these Mutual Aid towers on public lands falling within the Forest Preserve, but outside of the blue line, the Forest Preserve in its entirety would be further be protected in accordance with the purpose of Article XIV.

Yet, issuing a permit for the construction of radio towers for the primary purpose of protecting the Forest Preserve from fire is a diametrically different proposition than the one presented here. The issuance of hydro-fracking permits anywhere within the Forest Preserve, within the blue line or not, would not protect the Forest Preserve. On the contrary, there is a distinct likelihood that such operation would in fact destroy the Catskill Forest Preserve and New

²³ General Municipal Law § 209-e, § 209-j.

York City Watershed. Whereas the former permitting action by a State agency would further protect the Forest Preserve from the dangers of forest fire and the destruction to the Forest Preserve that would ensue, the latter permitting action by a State agency would in all likelihood irreparably destroy the Catskill Forest Preserve and neighboring NYC Watershed.

Currently, the magnitude of the harm that hydro-fracking could cause to the Forest Preserve cannot be accurately determined, on account of the unsubstantiated consequences associated with “high pressure” hydro-fracking (the method that would be utilized for mining operations in the Marcellus Shale). Considering the foregoing, it might appear unlikely that a state agency would issue permits for hydro-fracking on public lands acquired by the State under Article XIV, § 3, due to the constraints of Article XIV § 1. But this is not the case, as DEC seemingly supports the proposition of issuing hydro-fracking permits for natural gas exploitation of the Marcellus Shale,²⁴ perhaps due to the fiscal crisis the State of New York is currently embroiled in.

While it is uncertain whether hydro-fracking operations will be conducted on public lands within the Forest Preserve but outside of the constitutionally protected blue line, the same cannot be said of private lands sitting both within and without the Catskill Forest Preserve. As Justice Edmund L. Shea in *Helms v. Reid* held, “It is important to remember that although the Adirondack Park [and the Catskill Park]

²⁴ <http://www.dec.ny.gov/energy/46288.html>.

is wholly contained within forest preserve lands, the Constitution and the statutes give a different treatment to forest preserve lands depending upon whether they are within or without the park's boundary (blue line)."²⁵ Clarifying further, Justice Shea commented:

The “forever wild” language of section 1 of article XIV applies only to forest preserve lands, and as previously pointed out, the forest preserve lands do *not* include the privately owned land within the designated counties. Under these circumstances, the “forever wild” mandate only applies to about 39% of the Adirondack Park lands, which is all that is publicly owned.²⁶

And so the prospect of hydro-fracking for natural gas within the Marcellus Shale presents an enormous constitutional dilemma. While the purpose of the Article XIV provision is to keep designated public protected lands “forever wild” for the public enjoyment, that constitutional protection is constrained solely to public lands. Yet like the Adirondack Park, most lands located within the Catskill Forest Preserve are private, including those lands sought out by natural gas companies who seek potentially lucrative, licensed mining rights. As will become clear, the effects of hydro-fracking are unlikely to be localized or otherwise contained within the licensed property itself. On the contrary, by its very design, the effects of hydro-fracking will

²⁵ *Reid* at 601.

²⁶ *Id.* at 601, citing NYS Conservation Dept Report, *The Adirondacks, New York's Forest Preserve and a Proposed National Park*, p 5.

necessarily travel horizontally underneath adjacent lands. And these effected adjacent lands could conceivably include the constitutionally protected Forest Preserve lands as well as the vitally important NYC Watershed.

The Marcellus Shale Formation

Geologists categorize the Marcellus Shale as a Middle-Devonian Age,²⁷ predominately black, low-density, carbonaceous²⁸ shale.²⁹ The Marcellus Shale is a natural geologic formation composed of marine sedimentary rock found in much of the substrata of eastern states such as Ohio, Pennsylvania, West Virginia and New York. However, portions of the Marcellus Shale may also be found in small areas of Kentucky, Maryland, Tennessee, Virginia and even Canada.³⁰ The Marcellus Shale has low permeability and is considered to be a “tight formation.” The depths to which the Marcellus Shale can extend underground varies by location. For instance, in the eastern portion of Ohio, the depth of the Marcellus Shale could be as shallow as 3,000 feet, whereas portions of the Marcellus Shale in Pennsylvania are estimated to be as deep as 9,000 feet. In most areas, the Marcellus Shale lies a mile or more underneath the surface. In New York, the Marcellus Shale may

²⁷ The Devonian Age is a geologic temporal period occurring between 416 to 359.2 million years ago within the Paleozoic era.

²⁸ Meaning organic rich

²⁹ <http://geology.com/articles/marcellus-shale.shtml>

³⁰ *Id.*

usually be found at a depth of 3,000 to 5,000 deep and lies beneath most if not all of 29 counties.³¹

Contained within the Marcellus Shale is an enormous amount of natural gas. These deposits of natural gas are trapped within the impervious layers of limestone laced throughout the Marcellus Shale. The natural gas found within the Marcellus Shale formed when organic materials present in the sediment underwent the process of thermogenic decomposition, a consequence of the immense heat and pressure the Marcellus Shale was under.³² Natural gas is stored within the Marcellus in three ways: within the “pore spaces” of the shale, in the vertical fractures of the joints that permeate the shale, and absorption on organic material or carbon and mineral grains.³³

Estimates for the amount of natural gas trapped within the Marcellus Shale have shifted over time as a result of our greater understanding of the formation itself. For example, in a 2002 publication, the United States Geographic Survey believed that only 1.9 trillion cubic feet of natural gas was recoverable from the Marcellus Shale.³⁴ Yet the United States Department of Energy put forth its considerably higher estimate of 262 trillion cubic feet seven years

³¹ *Id.*

³² [Marcellus Shale Gas: New Research Results Surprise Geologists!](http://geology.com/articles/marcellus-shale.shtml), *geology.com*. Dr. Hobart M. King. <http://geology.com/articles/marcellus-shale.shtml>. (2008).

³³ <http://geology.com/articles/marcellus-shale.shtml>

³⁴ Gold, Russell, "Gas Producers Rush to Pennsylvania : Promising Results There Spur Investment". *The Wall Street Journal*: p. A2. (2008).

later.³⁵ Whereas one geology professor from the State University of New York at Fredonia calculated that only 49 trillion cubic feet of natural gas in the Marcellus Shale was recoverable,³⁶ a geosciences professor from Pennsylvania State University estimated that as much as 363 trillion cubic feet of recoverable natural gas was feasible.³⁷ Evidently, there is much more natural gas contained within the Marcellus Shale than originally estimated.

Mining for natural gas in the Marcellus Shale is not a contemporary endeavor. Traditional mining techniques have been employed at mines overlying the Marcellus Shale in both Tioga and Broome County for 50 years or more. However, yields from such operations were notoriously long and expensive. After some extensive study, it was eventually discovered that the most successful mines were those lying atop numerous fractures.³⁸ It would seem fortuitous then that with the advent and evolution of hydro-fracking, mining the Marcellus Shale could finally capture as much natural gas as possible by increasing the number of exploitable fractures. On the contrary, this

³⁵ US Department of Energy *Modern shale gas development in the United States: a primer*, p.17, (April 2009).

³⁶ Bertola, David (2008-02-08). "Researchers: Shale holds vast supply of natural gas". *Business First of Buffalo*. <http://buffalo.bizjournals.com/buffalo/stories/2008/02/11/story2.html?b=1202706000%5E1587557>.

³⁷ Esch, Mary, "Estimated gas yield from Marcellus shale goes up". *Philly.com*. http://www.philly.com/philly/hp/news_update/20081104_Estimated_gas_yield_from_Marcellus_shale_goes_up.html. (2008).

³⁸ "Marcellus Shale Gas: New Research Results Surprise Geologists!". *geology.com*. Dr. Hobart M. King. <http://geology.com/articles/marcellus-shale.shtml>. Retrieved 2008-05-03.

idealization of hydro-fracking is highly flawed, and hydro-fracking could ultimately lead to opposite, unintended and undesired results.

The Process of Hydro-Fracking

Hydraulic fracturing, more commonly known as hydro-fracking, is fast becoming the preferred method for natural gas extraction by neighboring states lying atop the Marcellus Shale. Hydro-fracking is the process of creating artificial fractures in gas-rich rocks found underneath a particular well site.³⁹ This feat is accomplished by first drilling vertically using drilling fluid (or as the mining industry has dubbed it, “mud”) thereby carving out a vertical well, which extends downward until the drill is just about to penetrate the natural gas reservoir to be mined. Once the vertical well is in proper position, the drill is then turned 90 degrees so that the drill is positioned horizontally in relation to the reservoir. The drill then proceeds horizontally and “head-on” into the rock.⁴⁰ Such horizontal drill paths can exceed a mile in length.⁴¹ Water, sand and an undetermined amount of undisclosed or “special” materials⁴² are then pumped at extreme high pressure through the well.⁴³ The water and undisclosed materials that are pumped through the well break apart the pores of

³⁹ <http://www.dec.ny.gov/energy/46288.html>

⁴⁰ *Id.*

⁴¹ http://www.nyc.gov/html/dep/html/news/natural_gas_drilling_overview.shtml

⁴² Materials may include lubricants, surfactants, defoamers, detergents, polymers, emulsifiers, stabilizers, dispersants and flocculants.

⁴³ <http://catskillmountainkeeper.org/node/290>

the rocks within the natural gas reservoir, thereby creating new, additional pathways for the natural gas to travel through. The sand used in the fracking fluid acts as a buttress and props open the rock to allow the recently hydro-fracked fractures to remain open.⁴⁴ Once equilibrium is achieved between the high-pressurized fracking fluids and the rock gradient of the shale, the fracturing process ceases, leaving a vertically oriented spider-like web of fractures. This is how natural gas within the Marcellus Shale is typically extracted by other states. If utilized, the Marcellus Shale operations will employ the “high volume” hydro-fracking technique, which calls for the use of enormous amounts of water to achieve the desired results of natural gas release.

Issues with Hydro-Fracking the Marcellus Shale

Though admittedly extremely effective in extracting natural gas (one need only to look at the results of hydro-fracking operations at the Barnett Shale in Texas for proof), the environmental risks associated with the use of hydro-fracking in the Marcellus Shale are both numerous and troubling. In the majority of states, the materials used in the hydro-fracking process remain tight-lipped industry secrets. However, in 2008 the Pennsylvania Department of Environmental Protection determined that while industry may keep their hydro-fracking “formulas” proprietary, they must nevertheless list the

⁴⁴ *Id.*

ingredients used in the fracking fluid. That publicly disclosed list included 54 chemicals, some of which include:

2-butoxyethanol, Monoethanolamine, Ethylhexanol, Dazomet, Formaldehyde, Acetic Anhydride, Glutaraldehyde, Isopropanol, Boric Acid, Propargyl Alcohol (Prop-2-yn-1-01), Ethane-1,2-diol (ethylene glycol), 5-chloro-2-methyl-4-isothiazotin-3-one, Ethylene Glycol, 12 Sodium Bicarbonate (NaHCO₃), Methanol and Diesel.⁴⁵

The general public may wonder what the bare disclosure of the chemicals means, while only a chemist would be expected to know what these chemicals are or what their role in natural environments may be, or whether these chemicals are even natural, only an ecologist can determine. It is nevertheless vital to recognize that scientists have determined some of the health effects that such listed chemicals have on the health of the human body, as well as on the planet itself.

According to researchers at the Endocrine Disruption Exchange, otherwise known as TEDX⁴⁶, 21 of the 54 listed chemicals are readily airborne. Of those 21 listed chemicals, 100% would have adverse effects to gastrointestinal and liver functions, respiratory systems and skin, eye and sensory organs if exposure occurred, while over half of the listed chemicals would have negative impacts on

⁴⁵ Sandy Long, The River Reporter, Vol. 34 No. 49, December 4-10 2008.

⁴⁶ A non-profit organization dedicated to gathering and distributing scientific evidence on low-dose exposure to chemicals, or endocrine disruptors.

immune system, ecological systems, kidneys and brain and nervous systems.⁴⁷

Similarly, of those 54 listed chemicals, 34 are water-soluble. If exposure to these chemicals occurs, over 90% would have an adverse effect on gastrointestinal and liver functions, respiratory systems and skin, eye and sensory organs. Likewise, in the event of exposure to these water-soluble chemicals, over half would result harmful consequences to immune systems, ecological systems, the kidneys and brain and nervous systems.⁴⁸

It is foreseeable that exposure to these hydro-fracking chemicals could occur as a result of well seepage by hydro-fracking mines. Many of these injected chemicals remain trapped underground after a hydro-fracking operation, potentially causing havoc to underground water aquifers.⁴⁹ Though “[n]o documented instances of groundwater contamination are recorded in the NYSDEC files from previous horizontal drilling or hydraulic fracturing projects in New York,”⁵⁰ no previous hydro-fracking operation has been nearly as large in scale as the proposed operations that would occur in the Marcellus Shale. Likely or not, the risk of these chemicals leeching out from the lined wells is highly disconcerting.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ <http://catskillmountainkeeper.org/node/290>

⁵⁰ <ftp://ftp.dec.state.ny.us/dmn/download/OGdSGEISFull.pdf> - DEC SGEIS. Cite properly

Other concerns include the sheer volume of water that would be needed in any prospective Marcellus Shale hydro-fracking operation. DEC estimates that between 2.4 million to 7.8 million gallons of water would be needed for a “multi-stage hydraulic fracturing procedure in a 4,000 – foot lateral wellbore.”⁵¹ But these numbers are dwarfed in comparison to the “tens to hundreds of thousands of gallons” of industrial fluids that are projected to be used during the initial vertical drilling process itself.⁵² In anticipation of the water demand, individual property owners seeking to cash in on their newfound mining rights have begun to construct ponds on their property to further accommodate the gas companies.⁵³ Meanwhile, regular sources of water for such operations have not yet been determined, but DEC has indicated that operators may withdraw the water themselves from underground sources or purchase the necessary water from outside sources.

This proposition raises a number of questions. Suppose the operator is permitted to extract the projected amount of water from the ground, what additional equipment and infrastructure would be necessary to extract the required amount? Would further destruction of forestry be necessary for the extraction? What effect would such large withdrawals have on the surrounding lands and connected aquifers?

⁵¹ above at 5.7.

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http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/rapid_impact_assessment_091609.pdf, pg. 29

⁵³ New York Times, When a Rig Moves Next Door, November 6, 2010, Clifford Krauss and Tom Zeller Jr.

The answer to some of these questions may have been answered in part by the Rapid Impact Assessment Report⁵⁴ prepared by Hazen and Sawyer for the City of New York⁵⁵ That report posited that since the Catskills lacks a regulatory power over water withdrawals from nearby watersheds, such as the regulatory authority that the Delaware River Basin Commission enjoys,⁵⁶ water extraction in the Catskills could be more vulnerable to excessive water extractions. This in turn would impede inflows to New York City reservoirs, effectively diminishing the New York City Department of Environmental Protection's (DEP) control over the New York City water supply system.⁵⁷ Furthermore, DEC only has the power to regulate water withdrawals and diversions that are related to the public use. DEC currently lacks the power to regulate water withdrawals and diversions related to gas well drilling or hydro-fracking operations.⁵⁸ Therefore, DEP as owner of significant portions of the NYC watershed could be adversely affected by excessive groundwater withdrawals.

On the other hand, if the operator of the Marcellus Shale mine opts to have the water imported to the hydro-fracking site, how will that water get there? Where will the water come from? Will additional roads need to be built to accommodate the deliveries?

⁵⁴ <http://www.hazenandsawyer.com/publications/the-threat-from-hydrofracking/>

⁵⁵ Hazen and Sawyer is an organization of engineers and scientists dedicated to safe drinking water and controlling water pollution and its adverse impacts on the environment.

⁵⁶ Delaware River Basin Compact § 3.8.

⁵⁷

http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/rapid_impact_assessment_091609.pdf

⁵⁸ Hazen and Sawyer at pg. 12.

The DEC in its Draft Supplemental Generic Impact Statement (DSGIS) conceded that infrastructure might not be limited solely to the hydro-fracking platform, but may include fresh-water pipelines constructed for the purpose of importing the needed water. Such hydro-fracking sites might also require the construction and maintenance of “centralized water storage or staging facilities,”⁵⁹ where water would be delivered by truck or by some other means. As the scale of hydro-fracking operation in the Marcellus Shale is already enormous as it is, further infrastructure could significantly heighten potential adverse environmental impacts – such as erosion - on the surrounding area.

Yet perhaps the most troubling aspect of hydro-fracking is the phenomena known as flowback. DEC explained the concept of flowback as the following:

After the hydraulic fracturing procedure is completed and pressure is released, the direction of fluid flow reverses. The well is "cleaned up" by allowing water and excess proppant (fracking fluid chemicals) to flow up through the wellbore to the surface. Both the process and the returned water are commonly referred to as “flowback.”⁶⁰

DEC, utilizing reports dealing with the northern tier of Pennsylvania, determined that approximately 9 to 35% - equating to approximately 216,000 to 2.7 million gallons - of hydraulic fracturing fluid returns as flowback.⁶¹ Presumably, the remaining hydro-fracking fluid concoction remains 3,000 to 5,000 feet below the surface; perhaps beyond the

⁵⁹ <ftp://ftp.dec.state.ny.us/dmn/download/OGdSGEISFull.pdf>, 5.7.1 at pg. 170.

⁶⁰ *Id.* at 5.11.

⁶¹ *Id.*, chapter 5.11.1 pg. 193.

reach of overlying fresh water aquifers. But of course nothing is ever certain.

Advocates for hydro-fracking the Marcellus Shale contend that the majority of fracking fluids used would remain deep underground, several shale formations below the fresh water table, rendering otherwise dangerous fluids harmless. However, hydro-fracking advocates fail to recognize that since over a third of the total amount of fracking fluid used may return as flowback, the risk of a well leak essentially doubles because flowback's journey back to the surface must necessarily travel back through the fresh water aquifer. As a result, there is a much greater risk that the surrounding underground fresh water aquifers could become contaminated with heavy metals, hydrocarbons, radionuclides or be exposed to salinity from neighboring aquifers if a well were to leak. Lined wells are not perpetually impervious and will decay over time – some faster than others - no matter how well constructed. The environmental fallout of a potential well leak would simply be devastating.

Even assuming *arguendo* that it would be unlikely that a hydro-fracking underground well would leach hazardous fracking chemicals into the surrounding groundwater, flowback still remains particularly concerning. Treatment and the disposal of flowback wastewater is a challenging proposition, complicated by the fact that the constituents or chemicals present in the flowback - such as high salinity, chemical residues and radionuclides - cannot be treated by

conventional means.⁶² Within the State of New York, only conventional treatment plants with approved pretreatment programs may receive the flowback wastewater and there are currently no plans for the design and construction of new special facilities to handle flowback waste.⁶³

So, what then is to be done with flowback waste? Some suggest mining companies should build new or revamp existing underground reservoirs to indefinitely store the waste. This does not seem to be an especially wise idea considering the issues discussed *supra* regarding the problems of having these chemical wastes in the ground to begin with, let alone indefinitely. While deep underground well leakage is indeed troubling, perhaps more concerning in the short term are the consequences of flowback waste mismanagement on the surface. It is possible that the United States Environmental Protection Agency's investigation on hydro-fracking's effect on groundwater⁶⁴ will be informative regarding the issues regarding flowback. Given the percolating nature of water, it is foreseeable that if hazardous fracking fluids are ill maintained or poorly constructed, seepage will occur leading to disastrous consequences for the Forest Preserve and NYC Watershed.

⁶² Hawyard at pg. 12.

⁶³ *Id.*

⁶⁴ Clifford Krauss and Tom Zeller Jr., *When a Rig Moves Next Door*, New York Times, November 6, 2010. (Briefly discuss USEPA's study).

The Impact of Hydro-Fracking the Marcellus Shale in Pennsylvania

If hydro-fracking operations were to be permitted by the DEC, what consequences might follow which could conceivably affect the constitutionally protected Catskill Forest Preserve? Since plans for hydro-fracking operations in the State of New York are still in its infancy, there is severe lack of data regarding the impact - negative or otherwise - that fracking may have on the surrounding ecosystem, particularly on underground potable water sources. Hence, a look towards the state of fracking operations in other states is therefore appropriate. While no determinative judgments have been rendered, numerous allegations have been levied and will be litigated. Hence, only inferences may be made at this point regarding the potential impacts of hydro-fracking on the Forest Preserve.

In Pennsylvania, where Marcellus Shale play has been prevalent for a few years now, multiple lawsuits and investigations against Marcellus Shale mining corporations have emerged. Allegations that company plans for hydro-fracking operations do not adequately protect the public water supply, and that hydro-fracking operations have already harmed the public water supply, are particularly prevalent. Recently, a municipal authority in Pennsylvania filed a suit seeking an injunction, which, if granted, would prohibit any hydro-fracking operations from being undertaken by a Marcellus Shale

mining company.⁶⁵ In that case, the Brockway Municipal Authority and Flatiron Developments entered into a lease whereby Brockway leased 4,000 acres of watershed land to Flatiron. After learning that the Flatiron corporation not only planned to construct a 10 million gallon impoundment structure, but the company would also clear 23 acres of forest on the leased land, the Municipality demanded assurance that the public water supply would be adequately protected by the company during all hydro-fracking operations.⁶⁶ The complaint specifically requests from Flatiron a sight-specific plan detailing the protections to the water supply the project will ultimately utilize.

Another recently filed Pennsylvania complaint from Bradford County alleges that a Marcellus Shale natural gas company contaminated her private well as a result of their fracking operations in the area over the course of several weeks, resulting in the woman being stricken with illness.⁶⁷ The complaint lists the woman's injuries as contact dermatitis, gastro-intestinal discomfort, barium poisoning, pain, numbness to her face and hands, deformities of the bones of her hands, and headache, among other injuries. Multiple companies are as defendants; including Chesapeake Appalachia, LLP, Chesapeake Energy Corporation and Nomac Drilling LLC are named in the suit. The woman alleges that through the negligent drilling practices of the

⁶⁵ http://wearecentralpa.com/wtaj-news-fulltext?nxd_id=226977

⁶⁶ Ibid.

⁶⁷ <http://www.americas-watchdog.com/another-pennsylvania-lawsuit-claims-marcellus-shale-gas-drilling-contaminated-water/>

defendants, methane, ethane, barium and other harmful substances were caused to intrude into and poison the woman's water supply. The woman claims defendant Chesapeake as well as the Pennsylvania Department of Environmental Protection discovered methane after testing the water.⁶⁸ The relief sought is preliminary and permanent injunction prohibiting the defendants from engaging in any further negligent mining.

In another public relations slight on the Pennsylvania hydrofracking industry, state officials are reportedly looking into a leak of drilling wastewater – flowback – at a natural gas well site operated by XTO Energy Inc. The leak of flowback polluted not only a stream, but a spring as well.⁶⁹ An inspector noticed that a valve at the bottom of a 21,000-gallon flowback storage tank was left open. Subsequent environmental tests revealed the presence of flowback contaminants in the water bodies. Between 2,400 and 13,000 gallons of flowback wastewater is believed to have escaped. Investigators remain unaware of how the valve came to be open. In 2010 alone, XTO accumulated 32 violations at the 20 plus well sites it controls in Pennsylvania.

Just recently, the Associated Press reported that some 3.6 million barrels of flowback were transported to Pennsylvania water

⁶⁸<http://www.newsinferno.com/health-concerns/marcellus-shale-gas-driller-named-in-water-contamination-lawsuit/>

⁶⁹ <http://washingtonexaminer.com/news/nation/2010/11/pa-investigating-spill-natural-gas-well-site>

treatment plants that empty into neighboring rivers.⁷⁰ Of course as noted above, flowback is difficult to treat and only a handful of water treatment facilities are capable of completely sanitizing flowback. Researchers, including the USEPA, are conducting studies to determine whether the discharge of “treated” flowback into Pennsylvania rivers is harmful to humans and wildlife.⁷¹

Existing Legislative Safeguards Against the Hazards of Hydro-Fracking

In light of the likely correlation between the degradation of Pennsylvania’s waterways - including groundwater located near hydro-fracking sites - and the institutionalization of hydro-fracking operations within that state, it is prudent to recognize what legislative protections are currently available to New Yorkers so that a similar fate might be prevented from befalling this State. Though relevant environmental laws do exist, they may be ill equipped to adequately protect either the Catskill Forest Preserve and neighboring ecosystems, or the NYC Watershed. Furthermore, there is genuine concern among the New York environmental community as to whether such legislative protections would ever be adequate (e.g., if those laws were strengthened through amendments) to ensure the continued purity of New York’s groundwater. If existing laws offer insufficient protection to

⁷⁰ David B. Caruso, *Pa. Allows Dumping of Tainted Waters From Gas Boom*, Associated Press, January 3, 2011.

⁷¹ *Id.*

ensure the continued sanctity of our Catskill Forest Preserve and precious water supplies, a constitutional amendment would then be the optimal means of insuring such protection.

The New York State Environmental Conservation Law (ECL) was adopted for the purpose of ensuring the protection of New York’s “natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well being.”⁷² Specifically addressing the importance of New York State’s groundwater, § 15 of the ECL (otherwise known as the Groundwater Protection and Remediation Program) states that “[a]dequate supplies of good quality groundwater are critical to the health and welfare of the residents of the state and to their economic well-being,”⁷³ and “[i]t is the intent of the legislature that groundwater be protected for its classified use, the highest of which is drinking water.”⁷⁴ On the other hand, the New York Mined Land Reclamation Law - a provision of the ECL – concurrently recognizes “that it is the policy of this state to foster and encourage the development of an economically sound and stable mining industry, and the orderly development of domestic mineral resources and reserves necessary to assure satisfaction of economic needs compatible with sound

⁷² ECL § 1-0101(1).

⁷³ ECL § 15-3103(2).

⁷⁴ ECL § 15-3103(4).

environmental management practices.”⁷⁵ And so a balance needed to be struck between these polarized goals.

To that end, the mining of natural resources within this State is regulated by the DEC under § 23 of the ECL. There, any individual endeavoring to mine at least “1,000 tons or 750 hundred cubic yards, whichever is less, of minerals from the earth in 12 consecutive calendar months” must apply to the DEC for permit to do so.⁷⁶ If an individual intends to mine over 100 cubic yards of minerals from or adjacent to any body of water not covered by § 15 of the ECL⁷⁷ or the public lands law, that person or entity must also receive a permit from the DEC before any mining operation may begin. Furthermore, a permit from the DEC is necessary for each individual mine intended to be constructed.⁷⁸

While local governments possessing jurisdiction over the proposed mine site do have some influence in the permitting process, it is limited. The chief administrator of the local government may make the following determinations about the proposed mining project for the DEC to consider: appropriate setbacks from property boundaries or public thoroughfare rights-of-way, manmade or natural barriers

⁷⁵ ECL § 23-2703(1).

⁷⁶ ECL § 23-2711(1).

⁷⁷ This provision, known as the Water Resources Law, protects freshwater surface streams by, *inter alia*, prohibiting the erection of any dam along said stream as well as mining from the bed of the stream without a permit from the DEC (ECL § 15-0501(1)) after it was determined that the health, welfare and safety of the people of New York would not be significantly undermined by the proposed operation. (ECL § 15-0501(3)(a)).

⁷⁸ ECL § 23-2711(1).

designed to restrict access if needed, and, if needed, the type, length, height and location thereof, the control of dust, hours of operation, and whether mining is prohibited at that location.⁷⁹ The local government has no power to make any other determinations other than those listed. Ultimately, the DEC alone may exercise discretion as to whether the proposed mining operation should proceed.

The lack of substantial local government participation in the § 23 permitting process may leave those communities lying atop the Marcellus Shale especially vulnerable to groundwater contamination. Currently, the DEC alone has the ability to determine whether the risk to groundwater that hydro-fracking and wastewater flowback poses justifies issuing § 23 permits to those applicants engaged in that industry. Though it cannot yet be proven beyond a doubt that hydro-fracking has contaminated groundwater, there is strong evidence that a correlation exists, as can be seen in the environmental degradation to Pennsylvania waterways adjacent to such mining operations.

This lack of conclusive evidence may explain why the DEC came to the conclusion that the risk of adverse environmental effects associated with the operation of hydro-fracking mines are outweighed by the financial gains hydro-fracking would provide to the State.⁸⁰ But to allow the DEC to unilaterally issue permits without first analyzing an interested local government's determinations as to hydro-fracking's

⁷⁹ ECL § 23-2711(3)(a)(i),(ii),(iii),(iv),(v).

⁸⁰ See Draft Supplemental Generic Environmental Impact Statement.
<ftp://ftp.dec.state.ny.us/dmn/download/OGdSGEISFull.pdf>

threat to its groundwater supply would be irresponsible. After all, it is the local towns and villages who will be the communities living closest in proximity to these potential hazardous mining areas, and their residents will be the ones to suffer the most immediate environmental effects in the event of flowback leakage into underground aquifers. Therefore, amending § 23 to allow local governments to make determinations about the risk to local groundwater hydro-fracking would pose could aid in the prevention of groundwater contamination by allowing those municipalities most likely to be adversely effected by such operations the right to make such determinations that the DEC must then consider before the issuance of any § 23 permit. Yet, such an amendment alone would not adequately protect either the Catskill Forest Preserve or the NYC Watershed because it would still ultimately be within DEC's discretion whether or not to issue § 23 permits for hydro-fracking operations in the Southern Tier.

Perhaps the most troubling aspect of the § 23 permitting process with respect to hydro-fracking is the provision's inapplicability to those individuals or entities that intend to excavate less than the requisite 1,000 tons or 750 cubic yards of minerals necessary to trigger the § 23 permitting process. It has been ruled that an operator excavating minerals at two separate mines, each with an output of 900 tons requires no permit to mine those minerals.⁸¹ It then logically follows that an operator could mine four, eight or any number of hydro-

⁸¹ Concerned Citizens of Franklin, N.Y., Declaratory Ruling dated Oct. 25, 1988.

fracking mines without obtaining a § 23 permit so long as the yield for each individual mine did not exceed 750 cubic yards per year. Since the Marcellus Shale contains many trillions of cubic feet of natural gas, it is not without the realm of possibility that at least some savvy hydro-fracking operators would utilize this loophole in the ECL.

For instance, imagine that recently hydro-fracked natural gas was not immediately extracted from the mine, but purposefully stored underground by an operator for future extraction. Would such activity fall under the auspices of § 23 of the ECL? There does not appear to be a clear answer to this question. However, one thing is for certain; to allow hydro-fracking operations to escape regulation would be tantamount to the destruction of our constitutionally protected Catskill Forest Preserve as well as the vitally important NYC Watershed. Thus, unless this § 23 loophole is permanently closed, a constitutional amendment extending protection to these important areas would be the only way of ensuring their continued vitality.

Another current legislative safeguard against the consequences of hydro-fracking can be found in the ECL under the State Environmental Quality Review Act (SEQRA).⁸² SEQRA requires all New York State agencies to conduct an Environmental Impact Statement (EIS)⁸³ “on

⁸² ECL § 8.

⁸³ ECL § 8-0105(7): “Environmental impact statement” means a detailed statement setting forth the matters specified in [section 8-0109](#) of this article. It includes any comments on a draft environmental statement which are received pursuant to [section 8-0109](#) of this article, and the agency's response to such

any action they propose which may have a significant effect on the environment.”⁸⁴ Whether an agency action⁸⁵ needs to conduct an EIS depends upon whether the action is categorized as a Type I, Type II or an Unlisted action. Whereas Type I actions often require an EIS, Type II actions never require an EIS while Unlisted actions depend upon the circumstances of the proposed action.⁸⁶

Furthermore, whether a proposed Type I or Unlisted agency action requires the preparation of an EIS depends upon whether that action receives a “negative declaration” or alternatively, a “positive declaration.” A negative declaration is made when a lead agency, such as the DEC, determines that the proposed agency action will not result in a substantial adverse environmental impact.⁸⁷ For a negative declaration to be deemed valid, a lead agency must be able to demonstrate that the proposed action will not significantly adversely effect the environment and may only come to that conclusion after taking a “hard look” at the relevant impact of the entire action.⁸⁸ If a proposed agency action receives a negative declaration, an EIS need not be prepared for that action.⁸⁹

comments, to the extent that such comments raise issues not adequately resolved in the draft environmental statement.

⁸⁴ ECL § 8 –0109(2).

⁸⁵ ECL § 8 –0105 (4)(i), (ii): actions may include, among others, any activity directly undertaken by an state agency, policy and regulations.

⁸⁶ <http://www.dec.ny.gov/permits/6203.html>

⁸⁷ <http://www.dec.ny.gov/permits/47965.html>

⁸⁸ *Id.*

⁸⁹ *Id.*

On the other hand, if a proposed agency action receives a positive declaration, a lead agency has then determined that the proposed action would result in at least one significant environmental impact. The standards for issuing a positive declaration include: assurance that the significant impact relates solely to environmental effects and not to economic and social factors; proof that a “hard look” was given to the relevant impacts of the proposed action which indicate their level of significance; evidence that the reasoning behind the positive declaration is consistent with the reasoning for prior positive declarations; a positive declaration that the proposed action includes mitigation measures which would negate or undermine significant adverse environmental effects related to the proposed agency action.⁹⁰ If a proposed action receives a positive declaration from a lead agency, an EIS must then be prepared before any decision may be made as to the proposed action.⁹¹

The purpose of conducting an EIS “is to provide detailed information about the proposed effect which a proposed action is likely to have on the environment, to list ways in which any adverse effects of such an action might be minimized, and to suggest alternatives to such an action as to form the basis of a decision whether or not to undertake or approve such action.”⁹² Each EIS must include, *inter alia*: a description of the proposed agency action and its environmental setting,

⁹⁰ <http://www.dec.ny.gov/permits/47962.html>

⁹¹ *Id.*

⁹² ECL § 8-0109(j).

short-term and long-term environmental impacts of the proposed action, and any mitigation measures available for the proposed environmental impact.⁹³ And a lead agency shall make an independent determination as to the adequacy of each EIS in terms of scope and content.⁹⁴

There are at least two problems with the SEQRA process with regard to protecting groundwater from hydro-fracking operations. For one, courts ordinarily give a high level of deference to agency determinations, including EIS determinations.⁹⁵ Such was the case in *Perrin v. Bayville Village Board*⁹⁶ where the Court rejected a SEQRA challenge by disgruntled neighbors and upheld an agency determination to allow the construction of radio towers in the neighborhood. The neighbors had been worried that radiation emitting from the radio towers would be harmful to the surrounding environment and community and sought the preparation of an EIS under SEQRA for the proposed agency action. The court ruled that the agency had adequately considered petitioner's "theoretical" adverse environmental effects and properly determined those effects to be too remote to deny the proposed action.⁹⁷ According to the court, the agency had properly exercised its discretion in issuing a negative declaration

⁹³ ECL § 8-0105(2)(a), (b), and (f).

⁹⁴ ECL § 8-0109(3).

⁹⁵ See *Chevron, U.S.A., Inc. v. Natural Resources Defense Counsel, Inc.*, 467 U.S. 837 (1984) for a look at the level of deference a court ordinarily gives to federal and state agency determinations in their construction and administration of statutes.

⁹⁶ *Perrin v. Bayville Village Board*, 70 A.D.3d 835 (2nd Dept., 2010).

⁹⁷ *Id.*

for the proposed action and therefore, the preparation of an EIS was unnecessary.

As previously discussed, it has not yet been conclusively shown that hydro-fracking will contaminate groundwater. As of today, there are only strong correlations suggesting a causal relationship. Like the circumstances surrounding potential damaging radiation emissions emanating from radio towers, the DEC might similarly conclude that evidence of cause and effect between contaminated groundwater and hydro-fracking operations are too attenuated to issue positive declarations for such operations. And even if a positive declaration is issued and an EIS subsequently prepared, it is still ultimately within DEC discretion as to whether the EIS merits denial of the proposed agency action. Because of the enormous potential adverse environmental consequences tied to hydro-fracking operations, such unilateral discretion is too much power for the DEC alone to wield. For if the DEC underestimates the effects of hydro-fracking on surrounding environments, the environmental and economic effects to this State would be catastrophic.

Another problem with the SEQRA process is that it only applies to “agencies” as defined in the ECL. A State agency includes all state departments, boards, agencies, public authorities or commissions and public benefit corporations.⁹⁸ Notably absent from the list of definitions is the Governor or any other executive office. The notion that the

⁹⁸ ECL § 8-0105(1).

Governor is not an agency and thus, not subject to the SEQRA process is supported by a federal case suggesting that the United States President cannot be considered an agency because of the lack of a definition indicating as much in the National Environmental Policy Act.⁹⁹ In light of this federal precedent and given the current economic crisis New York is facing, it is conceivable that Governor Cuomo or any future governor of this State could issue an executive order opening up the Marcellus Shale to hydro-fracking operations.

If such an executive order were issued, it would effectively subvert legislative intent expressly stated in the ECL: to protect New York's natural resources and environment as well as our groundwater supply through the mitigation of significant adverse environmental effects associated with state agency actions. If such an executive order were to be issued, it would avoid all meaningful professional study and any beneficial public debate on the adverse environmental effects associated with hydro-fracking operations by avoiding the need to prepare an EIS under SEQRA. This option may be attractive to the executive office as it could provide a "quick fix" to New York State's fiscal crisis, albeit at the expense of our constitutionally protected Catskill Forest Preserve and nearby New York City Watershed. If such a situation were to present itself, it is all but certain that severe

⁹⁹ See [*Public Citizen v. United States Trade Representative*, 5 F.3d 549 \(D.C. Cir. 1993\)](#).

degradation to our constitutionally protected Forest Preserve and groundwater supply would ensue.

Given the legal loopholes inherent within the § 23 permitting process, as well as probable executive immunity from the environmental safeguards of the SEQRA process, the Catskill Forest Preserve and NYC Watershed are insufficiently protected against the environmental consequences linked with hydro-fracking operations.

Implications For a Constitutional Convention and
An Amendment to Article XIV

As it stands today, nothing in Article XIV would prohibit hydro-fracking operations from commencing on private lands lying outside of the constitutionally protected blue line and Catskill Park. Likewise, current regulatory provisions of the ECL are of negligible value, being incapable of sufficiently protecting the Catskill Forest Preserve or the NYC Watershed from the dangers linked to hydro-fracking. Impacts originating on private lands could impact State Forest Preserve or NY City owned watershed lands. So the question then becomes what, if anything should be done to ensure that future generations of this State are able to drink clean groundwater and enjoy the wonder of the Catskill Forest Preserve? It seems that we as New York citizens have essentially three options:

1. We could leave Article XIV as is, placing our trust
in incoming energy companies and their assurance

that the hydro-fracking operations they would engage in are sufficiently safe for the surrounding Forest Preserve and NYC Watershed.

2. We could eliminate Article XIV altogether in a future constitutional convention, thereby opening a new market for significant industrial development in both the Catskills and Adirondacks.
3. We could add an amendment to Article XIV; an amendment that would regulate the land uses of real property falling outside of the traditional blue line and Park territories, by prohibiting any use of land in those areas that would result or is likely to result in significant environmental degradation to either the Catskill Forest Preserve or the NYC Watershed.

The option that would make the greatest long-term economic sense would be the third, to amend Article XIV. Promulgation of an amendment limiting the land uses of properties falling outside the blue line, thereby providing greater protective measures for the Catskill Forest Preserve and the NYC Watershed would make economic sense in at least two ways.

One fiscally important justification for an amendment strengthening the reach of Article XIV is the need for greater assurance that the NYC Watershed would be adequately protected from the

adverse environmental impacts associated with hydro-fracking. The NYC Watershed is unlike any other drinking water reservoir in the United States on account of its pristine water supply. Unlike most municipalities, New York City was granted a crucial exemption from a specific requirement under the federal Safe Water Drinking Act (SWDA).¹⁰⁰ The United States Environmental Protection Agency, with the aid of the New York State Department of Health, issued a final ruling granting New York City a Filtration Avoidance Determination (FAD) in July 2007, finding New York City's Watershed Protection Program for the Catskill/Delaware system sufficient to meet the requirements for unfiltered water systems under the SWDA.¹⁰¹

But a core requirement under a FAD exemption is the ability of a Watershed Control Program to identify, monitor, and control activities in the watershed that may have an adverse effect on source water quality. If hydro-fracking were allowed to commence anywhere near the NYC Watershed, continued compliance with this core requirement would be improbable and New York City's FAD would subsequently be imperiled. Without this exemption it has been estimated that New York City would need to expend around 10 billion dollars, solely for the construction of necessary infrastructure for watershed filtration systems. This astronomical figure does not include maintenance costs needed to keep the watershed filtration system

¹⁰⁰ 42 U.S.C. § 300(f),(g)

¹⁰¹ <ftp://ftp.dec.state.ny.us/dmn/download/OGdSGEISFull.pdf>; *See also* <http://water.epa.gov/type/watersheds/nycityfi.cfm>

operating under the standards established in the SDWA. And it is a near certainty that New York City could not bear this cost alone, but would look to the State itself for aid. Evidence of the need for an amendment to Article XIV is further buttressed by the fact that the federal Energy Policy Act of 2005 exempts hydraulic fracturing from federal regulation under the SDWA.¹⁰² The State of New York is alone in protecting the NYC Watershed from the dangers of hydro-fracking. Thus, we as New York residents ought to call for a Constitutional Convention, one that would effectively place the NYC Watershed on equal constitutional footing with Adirondack and Catskill Forest Preserves.

Likewise, an amendment to Article XIV adopting greater protective measures for the Catskill Forest Preserve would be economically advantageous as well. After all, the tourism industry over the past few decades has become one of the most dependable sources of revenue for upstate New York. As recently as 2004, studies have shown that upstate New York's tourism industry has been growing faster than the overall economies of Glens Falls, Binghamton, Dutchess County and Jamestown.¹⁰³ In fact, tourism has become so intertwined with the local economies of the Catskill region that the industry accounts for 10

¹⁰² Public Law 109-58, 2005 HR 6

¹⁰³ Richard Deitz, *The Regional Economy of Upstate New York: Tourism's Role in the Upstate New York Economy*, Federal Reserve Bank of New York, Buffalo Branch, (Spring 2004).

to 25 percent of all local employment.¹⁰⁴ If hydro-fracking operations were to be permitted to commence in the Catskill region – especially if proximately close to the Forest Preserve - upstate New York’s tourism industry would be irrevocably harmed. New Yorkers and out-of-towners alike visit the Catskill Forest Preserve and neighboring communities for many reasons: the breathtaking views of the Catskill Mountains, outdoor recreational activities and intellectual pursuits, such as exposure to the local culture of the region. Conversely, tourists do not travel to areas harboring industrial mining or production sites; such areas often prove to be aesthetically unpleasing, terribly noisy and they persistently emit foul smelling odors. In other words, hydro-fracking in the Southern Tier will amount to the destruction of not only the Forest Preserve, but the upstate tourism industry as well. And this is a consequence that the Catskill region can ill afford.

Conclusion

In order to sufficiently protect New York’s long-term economic interests, a Constitutional Convention ought to be formed; and with the precautionary principle in mind, an amendment promulgated, one which would strengthen Article XIV of the New York State Constitution. This amendment should be constructed in such a way so as to place the NYC Watershed on equal constitutional footing with the Catskill and Adirondack Forest Preserves. Furthermore, this amendment must include a provision prohibiting anyone from

¹⁰⁴ *Id.* at pg. 4.

conducting any activity on any land falling outside the bounds of the Forest Preserve – whether that land is public or privately owned - that is likely to adversely affect the wild nature of lands falling within the Forest Preserve.

Allowing hydro-fracking companies into the Southern Tier and permitting them to mine the Marcellus Shale would contravene the purpose our State ancestors expressly stated when they implemented Article XIV; namely, that state lands, now owned or hereafter acquired, constituting the forest preserve shall forever be kept as wild forest lands.¹⁰⁵ But perhaps more practically, to do nothing and allow Article XIV to remain unchanged (or worse yet, allow it to be repealed) would equate to the sacrifice of long-term economic gain for the false promise of an immediate and sustainable financial windfall. Hydro-fracking will bring short-term profits, yes, but they will come at an enormous price: the cost needed for not only the construction and perpetual maintenance of a NYC Watershed filtration system, but the irrecoverable lost revenue derived from a once lucrative upstate tourism industry. It is simply not worth it to allow hydro-fracking to lay ruin to the Catskill Forest Preserve or the NYC Watershed.

¹⁰⁵ N.Y. CONST. Art XIV.