

## INTRODUCTION

On behalf of Otsego 2000, Zarin & Steinmetz respectfully submits the following comments on the revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Program: Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Resources (“DSGEIS”), and the Department of Environmental Conservation’s (the “Department”) proposed regulations (the “Proposed Regulations”) relating to high-volume hydraulic fracturing. These comments, together with the exhibits annexed hereto, which are incorporated herein by reference, and made a part of Otsego 2000’s comments herein, supplement, and are in addition to, Otsego 2000’s comments, dated December 30, 2009, on the original DSGEIS (the “2009 Comments,” without exhibits, copy annexed hereto for the Department’s convenience), which are incorporated by reference herein and reiterated in their entirety. Otsego 2000 also understands that significant comments from other affected parties may also be submitted to the Department, and expressly reserves the right to incorporate such comments into Otsego 2000’s position in the future.

Otsego 2000 is a registered non-profit entity, duly organized and operating under Section 501(c)(3) of the Internal Revenue Code. Otsego 2000 is devoted to intelligent planning for the environment in Otsego County and neighboring regions, and to preventing irreversible change and damage to the unique, historic resources and environment of the area. While Otsego 2000 recognizes that the Department has responded to various comments made on the original DSGEIS, the current DSGEIS, as revised still fails to provide a rational basis for decision-making. The DSGEIS, respectfully, lacks essential information and analysis in many critical areas, does not provide the requisite substantial evidence, and otherwise fails to take the “hard look” required by the New York State Environmental Quality Review Act (“SEQRA”) at the potential significant adverse impacts to Otsego County’s watersheds, community character, historic assets, and its economy, which is based on agriculture, organic farms, breweries, health care service providers, tourism, recreational land uses, and a second home market, all of which depend upon clean water and a healthy environment.

The DSGEIS’s failure to rationally address the myriad problems associated with hydraulic fracturing is also reflected in the Proposed Regulations, which are largely incomplete, inconsistent with the DSGEIS and without rational basis. Otsego 2000 supports the Department’s shift to regulating hydraulic fracturing through a comprehensive regulatory scheme. This regulatory scheme, however, must be based on a “hard look” at the relevant potential significant adverse impacts, which, to date, the Department still has not taken in most significant respects.

## **POINT I**

### **THE DEPARTMENT'S DISPARATE TREATMENT OF DRINKING WATER SOURCES OUTSIDE THE NEW YORK CITY AND SYRACUSE WATERSHEDS IS FLAWED**

#### **A. Otsego County's Water Supply Is Equally As Vulnerable As Those of New York City and Syracuse**

As set forth in greater detail in Otsego 2000's 2009 Comments, Otsego County's water resources are particularly vulnerable to the potential significant adverse impacts of hydraulic fracturing. The failure to protect Otsego County's water resources jeopardizes not only its residents and the thousands of people who regularly visit the region, but also residents of other areas whose water originates in Otsego County. The Department recognizes in the revised DSGEIS that the "generic" review of hydraulic fracturing is not appropriate in the New York City and Syracuse Watersheds. Indeed, the DSGEIS concludes that high volume hydraulic fracturing (defined as fracturing operations utilizing more than 300,000 gallons of fluid) will not be allowed in the New York City and Syracuse watersheds. Respectfully, the Department should recognize that this generic approach also fails to capture site-specific factors uniquely affecting Otsego County. The Department must conduct further scientific review of the unique conditions found in Otsego County.

In addition, the Department must adopt the same prohibitions against high volume hydraulic fracturing in the Otsego Watersheds as those promulgated for the New York City and Syracuse Watersheds. To the extent progress has been made by the industry through technological advances and management of risks, it should be applied uniformly to all wells in New York State. Moreover, there is no rational basis for allowing wells fractured with less than 300,000 gallons of fluids to be exempted from the regulatory scheme contemplated by the DSGEIS.

Significantly, Otsego County's two largest population centers rely on surface water sources very similar to the New York City Watershed. The Village of Cooperstown takes its water from Otsego Lake. The Otsego Lake watershed covers a wide area. As reported in the 2010 Annual Drinking Water Quality Report for the Village of Cooperstown, Otsego Lake has a watershed that covers approximately seventy-five (75) square miles, covering two Counties and five townships. Numerous streams and springs feed into the Lake. Id. According to the Department's Bureau of Watershed Assessment and Management, Otsego Lake is already "threatened" as a water supply. (N.Y.S.D.E.C. Bureau of Watershed Assessment and Management, Division of Water, "The Susquehanna River Basin Inventory and Priority Waterbodies List," at 285 (Aug. 2009).) This Department Report indicates that a State

Department of Health (“DOH”) source water assessment of the Lake “found a moderately elevated susceptibility to contaminants.” (*Id.* at 286.) As the Department stated, “[t]his level of susceptibility is typical of many water supplies that experience impacts to water supply use and *reflects the need to protect the source.*” (*Id.* (emphasis added).) The Department clearly needs to consider the “need to protect” Otsego Lake, by developing a regulatory framework for hydraulic fracturing that prohibits high-volume fracturing in the Watershed.

The City of Oneonta relies on Wilbur Lake, also a surface reservoir, as well as back-up wells. The rest of the County uses groundwater drinking water sources, including, more than 24,000 individual wells, more than forty (40) separate water “systems” in local water districts, and approximately 150 public water supply systems. (See New York State Dept. of Health - Otsego County Contact Report 2011, [http://www.health.ny.gov/environmental/water/drinking/pws\\_contacts/otse\\_contacts.htm](http://www.health.ny.gov/environmental/water/drinking/pws_contacts/otse_contacts.htm) (last visited Jan. 5, 2012) (copy annexed hereto as Exh. “\_\_”).) Residents of other areas also use water originating in Otsego County. Otsego County is part of the Upper Susquehanna River Basin, and Otsego Lake constitutes the headwaters of the Susquehanna River. This River system serves more than six million (6,000,000) people, and drains into the ecologically threatened Chesapeake Bay.

The Department’s failure to rationally address the threat posed to the Otsego region’s water supplies by drilling activities and hydraulic fracturing is of special concern to Otsego 2000.

**B.     The Department Has Not Taken A “Hard Look” At  
          The Capabilities Of Filtration Plants In Otsego County**

The Department’s contention that the New York City and Syracuse Watersheds are deserving of special protection because they lack filtration facilities that could safeguard against contamination from hydraulic fracturing operations must apply with equal force to Otsego County. While Cooperstown and Oneonta maintain water filtration and chlorination facilities, these facilities are not designed to remove industrial wastes with dissolved contaminants or radioactive materials, such as are associated with hydraulic fracturing operations. (See Win McIntyre, Otsego Lake Watershed Manager, dsGEIS Comments, Dec. 20, 2011 (“McIntyre Comments”) (copy annexed hereto as Exh. “\_\_”).) As reported in the 2010 Annual Drinking Water Quality Report for the Village of Cooperstown, for example, the filtration plant for water from Otsego Lake uses an up-flow clarifier and a multimedia filter of sand and activated carbon. While these filters can eliminate limited volumes of sediment from drinking water, they are not designed to, and cannot, eliminate hydraulic fracturing contaminants in liquid form from water. Moreover, even if it were possible to develop filtration facilities adequate to cope with contaminants from hydraulic fracturing, the DSGEIS fails to take a “hard look” at the costs of such improvements. This also stands in sharp contrast to the DSGEIS’s

concern about the costs of a loss of the filtration avoidance determinations (“FAD’s”) in the New York City and Syracuse Watersheds.

The DSGEIS attempts to rationalize the special treatment of the New York City and Syracuse Watersheds because they do not have filtration facilities, and consequently, would face immense costs if, as the result of hydraulic fracturing operations, they were compelled to undertake filtration as the result of a loss of their FAD’s. The DSGEIS, however, fails to rationally analyze or consider whether these same concerns apply to other drinking water resources. Without ever squarely addressing the issue of whether, simply by virtue of having filtration facilities, a water system can handle contaminants from hydraulic fracturing, the DSGEIS makes a critical distinction in its treatment of filtered versus unfiltered drinking water:

Heightened public health sensitivities are associated with unfiltered surface water systems because the only treatment that these drinking waters receive before human consumption is basic disinfection through such methods as chlorine addition or ultraviolet light irradiation. In unfiltered systems there is no application of widely employed treatment measures such as chemical coagulation/flocculation or physical filtration to remove pathogens, sediments, organic matter other contaminants from the drinking water.

(DSGEIS at 6-43; see also DSGEIS Exec. Summ. at 20 (stating that the DSGEIS analysis does not apply to New York City and Syracuse Watersheds because they “present unique issues that primarily stem from the fact that they are unfiltered water supplies that depend on strict land use and development controls to ensure that water quality is protected”).) The DSGEIS fails specifically to take a “hard look” at whether the filtration facilities serving other communities are capable of handling hydraulic fracturing contaminants, and, if not, what their costs might be to develop facilities capable of handling these contaminants.

The DSGEIS’s failure to assess the actual capabilities of filtration facilities is irrational. “[T]here simply is not an adequate knowledge base to conclude that filtering would remove all, or even most, of the hazardous substances found in flow-back fluids from hydraulic fracturing.” (Letter to the Honorable Andrew M. Cuomo from Robert Howarth, Ph.D., et al., Physicians Scientists & Engineers for Healthy Energy, dated Sept. 15, 2011 (“Scientists’ Sept. 15<sup>th</sup> Letter”) (copy annexed hereto as Exh. “\_\_”).) As set forth by fifty-nine (59) scientists in a recent letter to the Governor, municipal filtration systems are “not designed with [the] hazards [of hydraulic fracturing] in mind”:

Potential contaminants of concern known to be in some flow-back fluids include benzene and other volatile aromatic hydrocarbons, surfactants and

organic biocides, barium and other toxic metals, and soluble radioactive compounds containing thorium, radium, and uranium. Municipal filtration systems were not designed with such hazards in mind, and the ability of the filtration systems to remove such hazardous substances has received little, if any, study.

(Scientists' Sept. 15<sup>th</sup> Letter.) In fact, the scientists who signed the letter believe "that the best available science suggests that some of these substances would pass through the typical municipal filtration system." (Id.) The DSGEIS's failure to evaluate the capacities of existing filtration systems in Otsego County and other areas is fundamentally flawed and irrational.

Indeed, the Otsego Lake Watershed Supervisory Committee advised the Department in its comments on the original DSGEIS that it was "irrelevant whether the water supply is filtered or unfiltered, the impact on public health of low levels of toxic chemicals will be the same:"

The point is that the contaminants in gas drilling wastewater are in solution, and, if in the water supply, cannot be removed by conventional filtration processes used by municipal water treatment facilities. Thus, it's irrelevant whether the water supply is filtered or unfiltered, the impact on public health of low levels of toxic chemicals will be the same.

(Otsego Lake Watershed Supervisory Committee, "Comments on DEC [2009] Draft Supplemental Generic Environmental Impact Statement (DSGEIS) for Gas Drilling".) As the Committee noted, "the typical filtration process for surface waters removes only insoluble particulate matter, and not contaminants in solution." (Id.; see also McIntyre Comments.) "[S]ince filtration of surface drinking water will not remove the dissolved contaminants from gas drilling flowback wastewaters, the impact of contamination will be the same regardless of whether the water is filtered or unfiltered." (Id.; see also Win McIntyre, "Gas Drilling in Drinking Watersheds," ("[M]ost of the contaminants are in solution and are not particulate matter. Filtration plants used by municipalities to remove particulate matter from drinking water are not capable of removing contaminants in solution. These contaminants will pass right through conventional filters and enter the drinking water system.")).

It is striking that, in revising the DSGEIS, the Department made no effort to address the threshold issue concerning the capabilities of filtration plants in Otsego or other counties to remove contaminants from hydraulic fracturing from drinking water. Has the Department even considered the actual capabilities of the filtration facilities in Otsego County? Would standard sand/aggregate filtration facilities be capable of filtering out the constituents of hydraulic fracturing fluids? The DSGEIS states that "[u]nfiltered drinking water supplies have a heightened sensitivity to chemical discharges as there is no immediately available method to

remove contaminants from the drinking water source waters.” The DSGEIS, however, does not take a “hard look” at whether there is any “immediately available method to remove contaminants” through filtration. (See DSGEIS at 6-48.) If the existing filtration facilities in Otsego County are not presently capable of keeping hydraulic fracturing fluid contaminants out of the water supply, what improvements would be needed to be made to filtration facilities to enable them to keep hydraulic fracturing contaminants out of the public water supply, and at what cost?

The Department should also consider whether or not the various chemicals in hydraulic fracturing fluids would be adsorbed to solvents. Would the coagulating agents used by treatment facilities in Otsego County cause the hydraulic fracturing fluids to be adsorbed? If the fluid constituents would not be adsorbed, the Department must consider how filtration plants could be expected to handle them, and, again, at what cost. The Department must also consider how the various constituents of hydraulic fracturing fluids might react with the chlorine used to disinfect water supplies. As reported in the 2010 Annual Drinking Water Quality Report for the Village of Cooperstown, water from Otsego Lake is kept in contact with chlorine for at least 120 minutes before it is pumped into the system. Would contact between the chlorine and hydraulic fracturing fluids result in additional harmful constituents, such as chlorinated solvents? And, if so, what are the health risks? Are there realistic mitigation measures? Again, if so, at what cost? These are basic questions that must be part of the “hard look” the Department must take before it draws a regulatory distinction between the New York City and Syracuse unfiltered water supplies, and water resources in Otsego County and elsewhere.

**C. Department Appears Unable To Take A “Hard Look”  
At The Capabilities Of Filtration Plants Until It Knows  
The Constituents Of Hydraulic Fracturing Fluid**

The Department’s ability to address these inquiries require the hydraulic fracturing operators to identify the constituents of hydraulic fracturing fluids *before* the Department contemplates a regulatory distinction based on the ostensible ability of filtration plants to keep these fluids out of the public water supply. Under the proposed regulatory scheme, applicants would only be required to identify and disclose the additive products in their hydraulic fracturing fluid at the time of an individual application. (See Proposed Regulation § 560.3(c)(1).) The Department should explain how it can evaluate whether filtration facilities could safely and effectively remove the contaminants in hydraulic fracturing fluid when the Department does not yet know the precise constituents with which it would be dealing or how various contaminants may interact. Related to this concern, if an applicant proposes to use an additive that the Department has not yet evaluated, would the Department require an evaluation of that additive’s properties as they may relate to the operation of filtration facilities?

**D. Department Has Not Considered The Costs To Otsego County Of Upgrading Filtration Plants, Assuming This Is Even Possible**

Similarly, while the DSGEIS expresses serious concern about the financial costs of a loss of the filtration avoidance determinations (“FAD’s”) for the New York City and Syracuse Watersheds, it appears entirely unconcerned with the costs other municipalities would face if they have to upgrade their filtration facilities to cope with hydraulic fracturing (assuming this is even possible). (See, e.g., DSGEIS at 7-55 (“The potential economic consequence of [adverse impacts on the “irreplaceable” New York City and Syracuse Watersheds] -- loss of Filtration Avoidance – are substantial.”).)

Also, as raised previously, the Department should consider how much it would cost to areas served by filtration plants if they had to restore water resources that became contaminated as the result of hydraulic fracturing operations. The DSGEIS states that “[o]nce polluted, it [is] very difficult and very expensive to return [unfiltered] water supplies back to their original condition.” (DSGEIS at 6-45.) The DSGEIS, however, fails to explain why filtered water supplies would not face the same encumbrances as the New York City and Syracuse Watersheds if polluted.

The DSGEIS also does not explain why other risks posed by hydraulic fracturing operations to unfiltered water supplies would not jeopardize filtered water supplies. The DSGEIS, for example, sets forth the multiple risks of failure in and around well pads and the risks of trucking in connection with hydraulic fracturing operations as further rationales for prohibiting hydraulic fracturing in the New York City and Syracuse Watersheds:

Well pad contaminant practices and setbacks are likely to effectively contain most spills at those locations. There is a continuing risk, however, of releases from chemicals, petroleum products and drilling fluids from the well pad as a result of tank ruptures, equipment or surface impoundment failures, overfills, vandalism, accidents (including vehicle collisions), ground fires, or improper operations. Spilled, leaked, or released fluids could flow to a surface water body. The intensive level of trucking activity associated with high-volume hydraulic fracturing, including the transport of chemical and petroleum products, presents an additional risk of surface water contamination due to truck accidents and associated releases. Given the topography of much of the NYC and Skaneateles Lake watersheds, many of the roadways are in immediate proximity to tributaries. Such proximity increases the risk that chemical

and petroleum spills would not, or could not, be effectively intercepted before entering the drinking water supply.

(DSGEIS at 6-48.)

The DSGEIS, however, again, does not take a “hard look” at why these same risks do not apply equally to the drinking water supplies in Otsego County and similar areas. Why does the risk of “[s]pilled, leaked or released fluids [] flow[ing] to a surface water body,” for example, mandate a 4,000-foot buffer from the New York City and Syracuse Watersheds, but lesser buffers from surface drinking water bodies in Otsego County? Nor does the Department explain why such risks are not present with respect to wells fractured with less than 300,000 gallons of fluids, as discussed in greater detail below. And why aren’t all watersheds, including the New York City and Syracuse watersheds, protected from spills associated with operations using less than 300,000 gallons? The topography of Otsego County also results in roadways located in closer proximity to its water supplies. The Department must consider these facts, as well as whether the transport of hydraulic fracturing fluids, for larger and smaller fracturing operations, should be prohibited on roads such as in Otsego County in close proximity to the region’s water supplies.<sup>1</sup>

**E. DSGEIS Does Not Explain Why Construction Related Impacts Would Affect The Otsego County Water Supply Any Differently Than The New York City And Syracuse Supplies**

The DSGEIS further recognizes that the construction-related impacts of hydraulic fracturing and the increase in impervious surfaces pose other adverse impacts to drinking water supplies (such as soil and erosion control problems), but, again, does not explain why such risks would be unique to the New York City and Syracuse Watersheds. (See DSGEIS at 6-50.) Are the filtered water supplies in Otsego County capable of handling the elevated turbidity and/or suspended sediment levels that would result from hydraulic fracturing related activities? Would the elevated turbidity and/or sediment levels affect the operational abilities of filtering facilities and/or increase maintenance and repair costs?

The DSGEIS also does not explain why Principal Aquifers are not afforded the same level of protection as the New York City and Syracuse Watersheds. The Department’s Technical and Operational Guidance Series (“TOGS”) 2.1.3 defines Principal Aquifers to be “[a]quifers known to be highly productive or whose geology suggests abundant potential water

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<sup>1</sup> As Otsego 2000 noted in its 2009 Comments, the geology of the New York City Watershed and of Otsego County and its environs are so similar that there is no rational basis for subjecting these areas to different regulatory regimes. (2009 Comments at 18.)

supply, but which are not intensively used as sources of water supply by major municipal systems at the present time.” As the map of “Primary and Principal Aquifers in New York State” posted on the Department’s website indicates, many Principal Aquifers are located in Otsego County. See <http://www.dec.ny.gov/lands/52251.html>. The DSGEIS would allow hydraulic fracturing within 500 feet of “Principal Aquifers,” subject to site specific review. (DSGEIS at 7-73.) This is, again, in sharp contrast to the absolute prohibition against hydraulic fracturing operations within 4,000 feet of the New York City and Syracuse Watersheds.

The DSGEIS recognizes specifically that Principal Aquifers are vulnerable to contamination. As the DSGEIS recognizes, “[a]n uncontained and unmitigated surface spill could result in rapid contamination of a portion of a Primary or Principal Aquifer.” (DSGEIS at 6-36.) “[T]he high permeability of soils that overlie these aquifers and the shallow depth to the water table make these aquifers particularly susceptible to contamination from surface activity.” (DSGEIS at 6-37.) The DSGEIS, however, does not take a hard look at the ramifications of contamination of “aquifers that the Department “know[s] are either] highly productive or [have] geology [that] suggests abundant potential water supply.” (See TOGS 2.1.3.) If these Aquifers are contaminated, can they be restored, and, if so, at what cost? How might the contamination of Principal Aquifers affect economic development in Otsego County?

Related to this, the Department should consider factors that may make drinking water supplies in Otsego County more vulnerable to contamination than in the New York City and Syracuse Watersheds. The Department, for example, needs to consider the fact that karst conditions exist in the northern part of the Upper Susquehanna River Watershed, which is north of Otsego Lake and Canadarago Lake (the second largest lake in Otsego County). (See McIntyre Comments.) The Upper Susquehanna Watershed provides drinking water supplies for the Villages of Cooperstown and Richfield Springs. Spills in karst areas can contaminate waterbodies thousands of feet from a spill site in a matter of hours. (See id.) The Department must require applicants to identify if there are karst conditions within 4,000 feet of the proposed operation. The Department should also consider special protections for areas where karst conditions exist, including, the potential prohibition of hydraulic fracturing in such especially vulnerable areas.

Ultimately, the Department’s concern about the threat hydraulic fracturing could pose to the New York City and Syracuse Watersheds is well placed. The point is that Otsego County is entitled to equal treatment. (See 2009 Comments at 12-13; see also Zahra v. Town of Southhold, 48 F.3d 674, 683 (2d Cir. 1995) (“The Equal Protection Clause of the Fourteenth Amendment of the United State Constitution ‘is essentially a direction that all persons similarly situated should be treated alike.’” citing City of Cleburne v. Cleburne Living Center, Inc., 473 U.S. 432, 439, 105 S. Ct. 3249, 3254 (1985).)

**F. DSGEIS Fails To Require Protection For Private Wells Consistent With The Guidance Document It Relies Upon**

The revised DSGEIS also does not explain why concerns about the unfiltered New York City and Syracuse Watersheds should not apply to other unfiltered water supplies, such as private wells. The DSGEIS recommends a 4,000-foot protective buffer around the New York City and Syracuse Watersheds, which, it asserts, is “based on its consistency with the principles of source water protection and the ‘multi-barrier’ approach to systematically assuring drinking water supply.” (DSGEIS at 7-56, citing Nat’l Research Council, *Watershed Management for Potable Water Supply: Assessing the NYC Strategy* (“*Watershed Management*”) at 97-98 (2000).) Initially, *Watershed Management* does not reference a 4,000-foot buffer; it discusses the benefits of a multi-barrier approach to safeguarding water supplies, which applies to all categories water supplies. The essential concept is to provide multiple levels of protection to sensitive water supplies.

*Watershed Management*, importantly, highlights that the “multi-barrier” approach is applicable to smaller water supplies, such as private wells. It states, for example, that “[f]or groundwater systems, the source water protection area, also known as the wellhead protection area, is defined as the zone of recharge around a well.” (*Watershed Management* at 137.) Similarly, Otsego 2000, in its 2009 Comments, advised that hydraulic fracturing should be prohibited from “the radius of pumping influence of public and private wells and their upgradient recharge areas” (as opposed to an arbitrary buffer setback). (See 2009 Comments at 19-21.)

The revised DSGEIS, however, would allow high-volume hydraulic fracturing up to 500 feet from private water wells or floodplains, and would even allow waiver of this restriction for wells/domestic use springs by a landowner. (DSGEIS Exec. Summ. at 22; DSGEIS at 7-74.) The Department should explain why it relies on *Watershed Management* for its analysis with respect to the New York City and Syracuse Watersheds for high volume fracturing, but does not follow the same guidance for vulnerable private wells, such as those in Otsego County, or, as discussed below, for wells under 300,000 gallons. The Department should also explain why it would allow hydraulic fracturing to be located in the zone of recharge around wells specifically, in contravention of *Watershed Management*.

**POINT II**

**THE REVISED DSGEIS IRRATIONALLY ASSESSES A WIDE VARIETY OF OTHER ISSUES**

Respectfully, the present record establishes that the Department has not given due consideration to many of the additional legitimate issues raised by Otsego 2000 and others in their comments on the original DSGEIS in 2009, including, but not limited to, visual, noise, traffic, community character, historic resources, public health and safety issues, and cumulative

impacts, not to mention the protection of Otsego County's current economic base. This record is not a rational basis upon which the Department can or should proceed.<sup>2</sup>

**A. There Is No Rational Basis For Exempting Hydraulic Fracturing Operations Involving Less Than 300,000 Gallons From the DSGEIS and the Proposed Regulations**

The Department offers no rational explanation for its failure to subject hydraulic fracturing operations using less than 300,000 gallons of water to the same framework as hydraulic fracturing operations involving 300,000 gallons or more. (See DSGEIS at 3-6.) Without any elaboration, the DSGEIS states that “[w]ells hydraulically fractured with less water are generally associated with smaller well pads and many fewer truck trips, and do not trigger the same potential water sourcing and disposal impacts as high-volume hydraulic fractured wells.” (Id.) This terse statement appears to be the Department's sole basis for subjecting hydraulic fracturing operations using less than 300,000 gallons to regulation pursuant to the 1992 Final Generic Environmental Impact Statement for the Oil, Gas, and Solution Mining Regulatory Program (the “1992 GEIS”), rather than the more comprehensive regulatory scheme contemplated by the instant DSGEIS.

The Department's failure to subject fracturing operations using less than 300,000 gallons of water to the same regulatory scheme as operations using more water is troubling. It would mean that the setbacks and mitigation proposals contemplated by the instant DSGEIS would not apply to many fracturing operations. Consequently, by way of example, wells fractured with 300,000 gallons or less of fluids could be placed as close as 150 feet from municipal water supplies, with open waste containment pits, without closed containers for secondary containment, using older casing standards, all without notification to local municipalities before a permit is issued. This would expose Otsego residents and other New Yorkers to unnecessary and unacceptable risks.

The one sentence rationalization in the DSGEIS is not a proper basis upon which to subject such operations to less meaningful regulation. (See DSGEIS at 3-6.) The summary conclusions on the few issues touched upon in that sentence also appear to have no empirical foundation. The Department offers no analysis explaining, for example, why 300,000 gallons is a rational threshold. The DSGEIS also fails to even address how the Department would calculate whether an operation is using less than 300,000 gallons of water. Would the total volume be

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<sup>2</sup> As set forth in the 2009 Comments, courts have not hesitated to vacate SEQRA determinations that fail to adequately address the issue of potential contamination. See, e.g., Penfield Panorama Area Cmty., Inc. v. Town of Penfield Planning Bd., 253 A.D.2d 342, 688 N.Y.S.2d 848, 853-54 (4<sup>th</sup> Dept. 1999); AC I Shore Rd., LLC v. Inc. Vill. of Great Neck, 43 A.D.2d 439, 841 N.Y.S.2d 344, 347 (2d Dept. 2007), leave to appeal denied, 10 N.Y.3d 779, 857 N.Y.S.2d 14 (2008).

calculated for each fracturing cycle, or over the life-cycle of a well? Would future repeated re-fracturing activity trigger the 300,000 gallon threshold? Is it a cumulative analysis?

Significantly, the 1992 GEIS does not provide an adequate basis for regulating hydraulic fracturing operations of any gallonage threshold, let alone the 300,000 gallon threshold proposed by the Department. First, as Otsego 2000 previously advised the Department, many of the underlying studies and modeling methods used to formulate the 1992 GEIS and its associated SEQRA Findings are “stale,” and unreliable as a matter of law. (See 2009 Comments at 13-14.) Further, the 1992 Findings indicate that they were not intended to serve as the basis for regulating “artificial means” for facilitating the production of gas from tight shale plays, such as hydraulic fracturing. The 1992 GEIS indicated that it was only intended to satisfy SEQRA with respect to “standard operations when they conform to certain thresholds set forth in the GEIS.” (1992 GEIS at 16.) The 1992 Findings Statement defined “standard oil and gas operations” as “production operations which *do not utilize any type of artificial means to facilitate the recovery of hydrocarbons.*” (1992 Findings at 2 (emphasis added).) While the 1992 SEQRA analysis may have considered hydraulic fracturing as a means of well completion in conventional formations, it did not consider hydraulic fracturing as a means for enhancing production in tight shale formations, such as the Marcellus and Utica plays. The use of hydraulic fracturing to facilitate the production of tight shale plays simply was not employed at that time.<sup>3</sup>

The 1992 GEIS also does not appear to have considered the chemical fracturing fluids now used in the industry. This analytic gap arose for reasons that may have included, again, that the 1992 GEIS did not consider the use of fracturing technology in tight shale plays, as well as that the use of chemicals for hydraulic fracturing would have been subject to the Safe Drinking Water Act in 1992. For these and other reasons, the 1992 GEIS and Findings do not provide a rational basis for regulating hydraulic fracturing to enhance production at any intensity.

The DSGEIS also ignores multiple areas of environmental concern where the impacts of hydraulic fracturing would appear indistinguishable, regardless of whether it involved more or less than 300,000 gallons of water. These include many of the impact areas discussed in Otsego 2000’s 2009 Comments and this Letter, such as methane leakage, conflicts with local land use plans, impacts on aesthetic and historic resources, and cumulative impacts.

For the reasons discussed above, all the provisions contemplated in the DSGEIS and the Proposed Regulations should apply to all wells where fracturing occurs, whether the

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<sup>3</sup> While the Department’s internet website asserts that “the 1992 GEIS considered the possibility of hydraulic fracturing, and that the GEIS determined that the environmental impacts associated with a permit to drill necessarily included the environmental impacts associated with hydraulic fracturing,” the actual language of the 1992 GEIS and the 1992 Findings do not support this interpretation. To the contrary, the 1992 GEIS, on its face, applies only to standard wells that do not require artificial stimulation to facilitate the recovery of hydrocarbons.

fracturing volumes are above or below 300,000 gallons. There is no rational basis for allowing wells fractured with less than 300,000 gallons of fluids to be exempted from all of the regulatory or mitigation provisions discussed in the DSGEIS.

**B. The Department Should Specify Where Hydraulic Fracturing in the Shale Formations Would Be Prohibited in Otsego County**

The DSGEIS indicates that developable shale formations must be “vertically separated from potential freshwater aquifers by at least 1,000 feet of sandstones and shales of moderate to low permeability.” (DSGEIS at 6-54.) The DSGEIS states that “[w]ell permit applications where the target fracturing zone is less than either 2,000 feet deep or 1,000 feet below a known underground water supply are addressed in Section 7.1.5,” which section pertains to setbacks in the New York City and Syracuse Watersheds. (DSGEIS at 7-71.)

Initially, the Department gives no empirical or scientific basis for how it determined that 2,000 feet below the surface or 1,000 feet below the deepest aquifer provides adequate vertical buffers. Fractures often exceed these distances. The DSGEIS also does not consider the ramifications of growing industry data suggesting that “out-of-zone” fracturing occurs with regularity, depending on formation conditions. Out-of-zone fracturing is often prevalent where geologic layers beyond the target fracturing zone are fractured as the result of hydraulic fracturing. Such out-of-zone fracturing is still poorly understood. Indeed, Otsego 2,000 understands that the industry itself has little experience with hydraulic fracturing in tight shale layers at shallow depths. At shallower depths, there are fewer intervening layers between the shale and drinking water aquifers. The DSGEIS’s conclusion that fracturing 1,000 feet below an aquifer is permissible appears questionable in light of the possibility of “out-of zone” fractures. The Department must develop vertical buffer distances that have some scientific rationale. The multi barrier approach should apply vertically, as well as horizontally. From industry data on fracture extent, it appears that a minimum of 3,000 feet below the deepest aquifer would be required, although proper analysis may show that the vertical buffer should be significantly greater.

In any event, it would appear that the DSGEIS provides that the Department would prohibit hydraulic fracturing where the target fracturing zone is less than either 2,000 feet deep or 1,000 feet below a known underground water supply (*i.e.*, similar to the prohibition set forth in Section 7.1.5). If this is correct, the Department should clarify this point by stating it directly. If this is not correct, the Department should explain what its position is with respect to hydraulic fracturing in any formation where the target fracturing zone is less than either 2,000 feet deep or 1,000 feet below a known underground water supply, including both the Marcellus and Utica formations.

Moreover, assuming that the Department is prohibiting hydraulic fracturing where the target fracturing zone is less than either 2,000 feet deep or 1,000 feet below a known underground water supply, the Department should analyze those geographic areas where hydraulic fracturing of the Marcellus Shale and Utica Shale would most likely be prohibited due to these restrictions. DSGEIS Figure 4.3, for example, indicates that the Marcellus Shale is less than 2,000 feet deep throughout most of Otsego County. Similarly, Figure 6.4 appears to indicate that the Marcellus Shale is more than 2,000 feet below the surface in only the southern portion of Otsego County. The Department should develop such maps for the Utica shale, and clearly set forth and delineate where hydraulic fracturing would not be permitted in Otsego County by virtue of the Department's assumptions about the depth of the Marcellus and Utica Shale plays.

Given the close proximity to the surface of the shale plays in southern Otsego County, the Department should also require applicants to confirm the depth of the freshwater aquifer in those areas. The Proposed Regulations only require an applicant to provide "the estimated maximum depth and elevation of bottom of potential fresh water, and the basis for such estimate." (See Proposed Regulation § 560.3(a)(2).) The DSGEIS, however, recognizes that "the maximum depth of potable water in an area should be determined based on the best available data." (DSGEIS at 2-23.) This admonition should apply with special force to areas where the Department's assumption of adequate vertical separation of the shale play from aquifers – *i.e.*, 1,000 feet below a known underground water supply – is questionable, such as in southern Otsego County. The Department must require the results of physical testing of the maximum depth of fresh water before any hydraulic fracturing application can be deemed complete where geologic conditions indicate that the fracturing zone may be less than 3,000 feet below the water supply. Moreover the Department must establish that fracturing zones are vertically separated from potential freshwater aquifers "by at least 1,000 feet of sandstones and shales of moderate to low permeability." (DSGEIS at 6-54.) The formations above the Marcellus and Utica shales are generally of *higher* permeability, not lower permeability.

**C. Fractures and Faults Unique to the Otsego Lake Region, Which May Lead to Contaminant And Methane Migration, Must Be Addressed**

The revised DSGEIS contends that hydraulic fracturing would not create pathways for *fluids* to migrate from the fracture zone to aquifers, but sets forth no comparable analysis about the potential migration of methane gas from the fracture zone. (See DSGEIS at 6-53 to 6-54.) The DSGEIS acknowledges that "[t]he highly fractured Devonian shale formations found throughout western New York are particularly well known for shallow methane accumulations." (DSGEIS at 4-36.) The DSGEIS suggests, on the one hand, that methane can only migrate to aquifers as the result of poor construction practices, stating that "[t]he migration of methane can contaminate well water supplies if well construction practices designed to prevent gas migration are not adhered to." (DSGEIS at 4-38.) Elsewhere, however, the DSGEIS

appears to concede that “normal” drilling operations can cause methane to migrate, stating that dissolved methane and ethane “[o]ccur naturally in many aquifers but may also migrate into aquifers as a product of drilling and production.” (DSGEIS at 7-46.) The DSGEIS does not appear to have considered that hydraulic fracturing operations may cause methane to migrate to aquifers through pre-existing faults and fractures. (See Osborn, et al., “Methane Contamination of Drinking Water Accompanying Gas Drilling and Hydraulic Fracturing,” Proceedings of the Nat’l Academy of Science, May 17, 2011, Vol. 108, No. 20.)

The federal Shale Gas Subcommittee of the Secretary of Energy Advisory Board (“SEAB”) has indicated that methane from hydraulic fracturing has contaminated proximate drinking wells, and recommended further study to evaluate this problem:

[A] recent, credible, peer-reviewed study documented the higher concentration of methane originating in shale gas deposits (through isotopic abundance of C-13 and the presence of trace amounts of higher hydrocarbons) into wells surrounding a producing shale production site in northern Pennsylvania. The Subcommittee recommends several studies be commissioned to confirm the validity of this study and the extent of methane migration that may take place in this and other regions.

(SEAB Shale Gas Production Subcommittee Ninety-day Report, Aug. 11, 2011, at 20; see also Paul A. Rubin, Hydroquest, “Report for the Delaware River Basin Commission Consolidated Administrative Hearing on Grandfathered Exploration Wells, Nov. 15, 2010, at 17 (“[M]ultiple studies indicate the presence of pervasive natural fracturing that will allow for migration to freshwater aquifers of methane, other hydrocarbons and their constituents, drilling fluids and materials, and naturally occurring hazardous materials including deep saline waters and NORMs.”)).

As Otsego 2000 noted in its previous comments, the documented and confirmed fractures and faults in and around Otsego County are more widespread than the DSGEIS recognizes. (2009 Comments at 15-16.) These fractures and faults represent only a small portion of fractures actually present. Even in the absence of deep hydraulic fracturing in the Marcellus Shale, these naturally occurring fractures and faults already provide upward gaseous migration pathways. (See id.) The revised DSGEIS, however, continues to rely on the same outdated information. (See DSGEIS Fig. 4.13.) Yet, one of the few faults recognized by the DSGEIS appears to be located next to Otsego Lake, and under the area aquifer. (See id.) The Department needs to consider the vulnerability of these areas to methane as the result of existing geological faults. The Department should also adopt reasonable setback distances from such existing geologic faults.

Related to this, the Department also must consider recent evidence suggesting that hydraulic fracturing could precipitate earthquakes, which could create additional pathways for

contaminants, including methane, especially where known faults already exist. (See Henry Fountain, “Add Quakes to Rumbings Over Gas Rush,” N.Y. Times at D1, Dec. 13, 2011 (discussing “the disquieting notion that [hydraulic fracturing] could lead, directly or indirectly, to a damaging earthquake”); See also Henry Fountain, “Disposal Halted at Well After New Quake in Ohio,” N.Y. Times at A11, Jan. 2, 2012 (discussing a string of earthquakes that occurred in Ohio which are likely tied to “the underground disposal of wastewater from natural-gas drilling operations”).)

The revised DSGEIS’s effort to address concerns about the transport of methane gas and contaminated water to aquifers through pre-existing fractures and pathways created by hydraulic fracturing is also flawed. The “Analysis of Subsurface Mobility of Fracturing Fluids,” prepared by ICF International, which is attached to the DSGEIS as Appendix 11 (the “ICF Report”), is premised on seemingly improper assumptions. The ICF Report, for example, appears to be premised on the assumption that the injection pressure that would force contaminants to the surface would only occur “during the limited time of application of the fracturing pressures.” (ICF Report at 27.) Otsego 2000 understands, however, that injection pressure continues to force water away from the well for a period of up to twenty (20) times longer than the period over which pressure is applied. Thus, injection would affect the flow for significantly longer than just the fracturing operation.<sup>4</sup> Otsego 2000’s concerns about hydraulic fracturing’s potential to adversely impact potable water resources was, unfortunately, recently confirmed by the United State Environmental Protection Agency (“EPA”). (See “E.P.A. Implicates Fracking in Pollution,” N.Y. Times, Dec. 8, 2011.) The EPA found that compounds likely associated with hydraulic fracturing chemicals had been detected in the groundwater beneath Pavilion, Wyoming. *Id.* Pavilion area residents have been advised not to drink the water. *Id.* Notably, the hydraulic fracturing that appears to have contaminated Pavilion’s water supply occurred below the level of the drinking water aquifer and close to water wells. *Id.* The Department needs to consider the implications of the EPA’s findings in Pavilion.

The Department must conduct analysis of the potential contamination of aquifers from hydraulic fracturing through existing faults and fractures, including risks that may result from the repeated re-fracturing of existing wells. The Department may, for example, wish to collaborate with the SEAB on the studies it recommended on this issue.

#### **D. Conflicts With Local Land Use Plans**

The DSGEIS fails to adequately consider, much less provide adequate mitigation for, hydraulic fracturing projects that are inconsistent with municipalities duly adopted land use

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<sup>4</sup> The ICF Report does not appear to assess the potential migration of methane gas. (See ICF Report at 29 (indicating that analysis only concerns the movement of groundwater).) Again, the Department should consider whether methane gas would travel faster and/or more easily from the fracture zone to the surface and proximate aquifers.

plans. Local authorities have the legal right to regulate land uses, including, in particular, the power to prohibit natural gas drilling and other heavy industrial uses within their jurisdictions. The Department's assertion that its "exclusive authority to issue well permits supercedes local government authority relative to well siting," is incorrect. (See DSGEIS at 8-4.) It would appear that the Department is relying upon language in Oil, Gas and Solution Mining Law, which states that said Law "shall supercede all local laws or ordinances relating to the regulation of the oil, gas and solution mining industries," for this proposition. See N.Y. Envtl. Conserv. L. § 23-0303(2). In *Frew Run Gravel v. Town of Carroll*, the Court of Appeals rejected specifically the argument that local land use authority was preempted by language in the Mined Land Reclamation Law ("MLRL"), which provided that the MLRL superceded "all local laws relating to the extractive mining industry." 71 N.Y.2d 126, 524 N.Y.S.2d 25, 27-29 (1987). Indeed, the Court held that it would improperly curtail municipalities' lawful power under Local Governments and Town Law to construe the aforementioned MLRL language to preempt local zoning prohibiting mining. 524 N.Y.S.2d at 29. The MLRL language that the *Frew Run* Court relied upon is clearly analogous to the language from the Oil, Gas, and Solution Mining Law, which the Department now appears to invoke. Respectfully, the Department is overreaching in asserting that its authority supersedes local authority to prohibit gas drilling.

The Department also has not formulated an appropriate mechanism for determining whether an application would conflict with local land use plans. The DSGEIS states that applicants would "be required to advise DEC if their project "conflicts with local land use laws, regulations, plans or policies," including municipal comprehensive plans. (DSGEIS at 3-14.) Initially, however, the Proposed Regulations do not appear to have any requirement analogous to the DSGEIS language, which would require applicants to notify the Department of any conflicts between their project and local land use requirements. (See Proposed Regulation § 560.3(a).) In any event, it makes no legal or practical sense to leave the determination solely with the applicant as to whether a proposed hydraulic fracturing operation is inconsistent with local land use requirements.

The DSGEIS goes on to state that the Department will automatically issue a permit if an applicant states that there is no conflict with local land use plans "unless [the Department] receives notice of an asserted conflict by the potentially impacted local government." (DSGEIS at 8-5.) Neither the DSGEIS nor the proposed regulations, however, indicate how a municipality would learn about an application or provide "notice" to the Department in the first instance.

Municipalities must automatically be apprised of all complete hydraulic fracturing applications within their jurisdictions, as well as be provided a reasonable opportunity to inform the Department if such application is prohibited by local legislation or inconsistent with local land use plans. The Department is already required to automatically apprise municipalities of "major" applications once the Department has deemed them complete pursuant to 6 N.Y.C.R.R.

Section 621.7(a)(1). All hydraulic fracturing applications should be deemed “major” applications.

Municipalities must then be given a reasonable time, of no less than thirty (30) days from receipt of the notice, to inform the Department in writing if the application would be prohibited by local law, rule, or ordinance or inconsistent with local land use plans. *Cf.* 6 N.Y.C.R.R. § 621.7(b)(6)(iii) (establishing that municipalities have thirty (30) days to comment from publication of notice of complete application of projects under the Mined Land Reclamation Law). As an alternative approach, the Department should make it a requirement before an application is deemed complete that an applicant obtain from the host municipality a Certificate of Compliance with local law. This would be a simple form. A municipal official would attest solely to whether or not the application would be prohibited by local law, rule, or ordinance. The municipality should have ten (10) days to respond to an Applicant’s request for a Certificate of Compliance. Under either approach, if a municipality timely informs the Department that the application is prohibited by local law, and/or issues a Certificate of Compliance indicating that the application is prohibited by local law, the Department must reject the application. If the municipality fails to inform the Department of a local prohibition on the application or fails to timely respond to an Applicant’s request for a Certificate of Compliance, the Department may determine that the application is not prohibited by local law. Where natural gas drilling is not prohibited by local legislation, and the municipality identifies a conflict with local land use plans, the regulations should establish that it is a *prima facie* “substantive and significant issue” warranting resolution in an Adjudicatory Hearing before an Administrative Law Judge pursuant to the procedure set forth in the section below.

**E. Community Character**

The DSGEIS indicates that the rapid growth of hydraulic fracturing operations could adversely impact local community character, but fails to set forth a mechanism to mitigate this potentially significant adverse impact. Where local land use law does not prohibit gas drilling, the Department should consider a regulatory scheme, similar to the Padavan Law (discussed below), which would incorporate municipal input to determine if an “excessive number” of hydraulic fracturing operations are being located in a particular community.

The DSGEIS acknowledges that rapid hydraulic fracturing growth could cause adverse community character impacts, stating that “[s]low, moderate growth of the industry, if it were spread over several years, would generate much less acute impacts than rapid expansion over a limited time.” (DSGEIS at 6-317.) Conversely, when “changes [to community character] are abrupt and dramatic, residents typically find them adverse.” (*Id.*) A study, which the DSGEIS relies upon, similarly found that “[t]he pace and scale of gas drilling will be a crucial determinant of the overall impact on the tourism economy of the Southern Tier.” (Andrew Rumbach, “Natural Gas Drilling in the Marcellus Shale: Potential Impacts on the Tourism Economy of the Southern Tier” (“Rumbach”), at 20.) The study adds that “[n]early every

negative impact of drilling discussed [in the study] could be more or less disruptive depending on the pace and scale of drilling.” (Id. at 20.)

The DSGEIS, however, commits only that “the Department will monitor the pace and concentration of development throughout the state to mitigate adverse impacts,” and “consult with local jurisdictions, as well as applicants, to reconcile the timing of development with the needs of the communities.” (DSGEIS at 7-120.) Without any discussion or analysis of review criteria, the DSGEIS states that “[w]here appropriate the Department would impose specific construction windows within well construction permits in order to ensure that drilling activity and its cumulative adverse socioeconomic effects are not unduly concentrated in a specific geographic area.” (Id. 7-120 to 7-121.) This is too vague and amorphous of a “commitment” for what even the DSGEIS indicates could be a significant potential adverse impact. See, e.g., Penfield Panorama, 688 N.Y.S.2d at 853-54; AC I Shore Road, 841 N.Y.S.2d at 347.

First, it is unclear how the Department would even be alerted to the fact that hydraulic fracturing development may be reaching a tipping point in a particular community. The Proposed Regulations do not require applicants to provide any information relating to the number of approved or pending applications for hydraulic fracturing for the affected municipality. (See Proposed Regulation § 560.3(a).) To begin with, the Regulations should require this information of all applicants before any hydraulic fracturing application, again, can be deemed complete.

Second, the Department does not appear to have conducted any analysis with respect to when the Department believes it may be “appropriate” to intervene to protect community character. (See DSGEIS at 7-120 to 7-121.) Respectfully, the lack of any guidelines “is an invitation to abusive and arbitrary decision-making based on nothing more than the personal opinions or whims of individual public employees.” See City of New York v. Am. Sch. Publ’ns, Inc., 119 A.D.2d 13, 505 N.Y.S.2d 599 (1<sup>st</sup> Dep’t. 1986), aff’d, 69 N.Y.2d 576, 516 N.Y.S.2d 616 (1987); see also Wash. County Cease, Inc. v. Persico, 99 A.D.2d 321, 473 N.Y.S.2d 610 (3d Dep’t. 1984), aff’d, 64 N.Y.2d 923, 488 N.Y.S.2d 630 (1985) (holding that DEP’s failure to promulgate final rules and regulations adopting criteria and application forms for hazardous waste facility sites rendered determination by DEP void). Again, the Department cannot lawfully defer the development of critical mitigating criteria until after the close of the SEQRA process.

Finally, while the DSGEIS states that the Department would “consult with local jurisdictions,” nothing in the Proposed Regulations appears to mandate this. (DSGEIS at 7-120.) Again, the Regulations must mandate that municipalities be informed of every application filed within their jurisdictions.

Moreover, where local legislation does not prohibit gas drilling, the Department should consider adopting a scheme similar to the Padavan Law, which mandates municipal consultation with respect to community impacts. Under the Padavan Law, whenever a site is proposed for a community residential facility for the disabled, the sponsoring agency must notify the chief executive officer of the municipality in writing. See N.Y. Mental Hygiene Law § 41.34(c). The notice must provide sufficient information to allow the municipality to evaluate all such facilities affecting the nature and character of the area wherein such proposed facility is to be located. Id. The municipality then has a set time period to object if it believes the proposed facility would, by virtue of the concentration of such communities, cause “the nature and character of areas within the municipality [to] be substantially altered.” See N.Y. Mental Hygiene Law § 41.34(c)(1)(C). If the sponsoring agency and the municipality thereafter cannot reach agreement on an appropriate location, the Commissioner must, following a hearing, resolve the issue. See N.Y. Mental Hygiene Law § 41.34(c)(5). The Commissioner must sustain a municipality’s objection if he determines that “the nature and character of the area in which the facility is to be based would be substantially altered as a result of establishment of the facility.” Id. The Commissioner’s decision is subject to challenge in an Article 78 proceeding. See N.Y. Mental Hygiene Law § 41.34(d).

The Department should consider a similar scheme involving municipalities affected by hydraulic fracturing applications to ensure that hydraulic fracturing does not proceed at such a pace as would result in significant, unmitigated adverse impacts with respect to community character. Again, every hydraulic fracturing application should be deemed a “major” application, requiring the Department to automatically notify the affected municipality of the subject application. See 6 N.Y.C.R.R. § 621.7(a)(1). Municipalities must then be given a reasonable time, of no less than thirty (30) days from receipt of the notice, to identify potential significant adverse impacts of the application on community character, including as the result of cumulative impacts. Cf. 6 N.Y.C.R.R. § 621.7(b)(6)(iii) (establishing that municipalities have 30 days to comment from publication of notice of complete application of projects under the Mined Land Reclamation Law). If a municipality identifies a specific conflict involving community character, the application should be deemed, as a matter of law, to be a “substantive and significant” issue, warranting resolution in an Adjudicatory Public Hearing before an Administrative Law Judge (“ALJ”). See 6 N.Y.C.R.R. § 621.8(b).<sup>5</sup> At the conclusion of the Hearing, the ALJ would issue a Hearing Report to the Department Commissioner, who would issue a Final Decision. See 6 N.Y.C.R.R. § 622.18.

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<sup>5</sup> To avoid overburdening ALJ’s with the various issues municipalities raise in connection with various hydraulic fracturing applications, the Department may wish to consider establishing an office to handle non-binding arbitration among the affected parties. The Federal Energy Regulatory Commission (“FERC”), for example, has a Dispute Resolution Service (“DRS”), which has been effective in resolving disputes between municipalities and major utility applicants. See <http://www.ferc.gov/legal/adr/drs.asp>.

**F. Visual and Historic Resources**

Otsego 2000 recognizes that the revised DSGEIS improves the Department's consideration of hydraulic fracturing impacts on visual resources, including adopting the recommendation that the Department incorporate its own guidance for visual impacts into the review process. (See DSGEIS at 7-121 to 7-122; see also DEC Guidance Memorandum, "Assessing and Mitigating Visual Impacts," DEP-00-2.) The Department's Guidance Memorandum, however, only compels site specific review where the viewsheds of "designated aesthetic resources" may be impacted. (See "Assessing and Mitigating Visual Impacts," at 2.) The designated aesthetic resources covered by the Guidance Memorandum include only a limited universe of resources that meet certain State and federal criteria, such as properties on or eligible for inclusion on the National or State Historic Registers. (See id. at 3-4). As the Guidance Memorandum states, however, "[i]t is important to note that all significant scenic and aesthetic resources may not have yet been designated in New York State." (Id. at 3.) Neither the DSGEIS nor the Proposed Regulations set forth any mechanism for identifying, let alone protecting, visual resources that do not technically qualify as "designated aesthetic resources."

Otsego 2000, in its 2009 comments, recommended that, consistent with the Guidance Memorandum, the Department should either itself, or compel applicants, to contact local jurisdictions to ascertain from them sensitive visual resources in connection with specific permit applications deserving of site-specific consideration. (See 2009 Comments at 30.) Indeed, the DSGEIS itself acknowledges "[t]he potential for other visual resources and visually sensitive areas within the areas underlain by the Marcellus and Utica Shales in New York, which are defined by regional planning entities, county and town agencies, and local communities and their residents." (DSGEIS at 2-116.)

The DSGEIS, however, substantially undercounts the amount of historically sensitive resources that would be impacted by hydraulic fracturing, and improperly indicates that the Department would only consider an individual application's impact on National Register ("NR") and National Register Eligible ("NRE") properties. First, many historically important sites and landscapes have not been listed on the NR or have not been technically deemed NRE. Identifying and evaluating NR and potentially NRE sites and rural vernacular landscapes using the National Register criteria is time-consuming, and can be relatively costly. While Otsego County has three (3) documented NRE Districts, there are many more districts that would likely be documented as NRE, and subsequently listed on the Historic Register, if the financial resources were available. (See "Assessment of DSGEIS with Regard to Otsego County's Visual Resources," Jessie Ravage, Historic Preservation Expert, Cooperstown, N.Y., dated December 15, 2011 ("Ravage Comments") (copy annexed hereto as Exh. "\_\_"); see also Map of Otsego County Leased Parcels overlain by Historic Districts, Eligible Historic Districts, and potential NRE's that have not yet been formally documented (copy annexed hereto as Exh. "\_\_").) As Ravage notes, "[t]he very small number of NR-listed and NRE cultural resources noted in the

[DSGEIS] shows *not* that few places are NRE, but that the kind of survey and evaluation required using NR criteria has been carried out in very few locales.” (Ravage Comments at 5.)

Moreover, the DSGEIS appears to mistakenly lump together individual NR-listed and NRE properties. (Id.) As noted in Otsego 2000’s “Seven to Save” Nomination Form with the Preservation League of New York State, the DSGEIS’s assertion that Otsego County has 52 NR properties fails to reflect the thousands of listed contributing properties that are located in large historic districts. Northern Otsego County alone has over 42,000 contiguous acres of NR and NRE properties in the Glimmerglass, Lindsay Patent, and Waggoner Patent Historic Districts. Combined, these Historic Districts have approximately 2,500 contributing buildings, sites, structures, and objects. Again, an even larger number of properties would be listed if the resources were available. (Ravage Comments at 5.) The Department, respectfully, should better protect these resources.

The revised DSGEIS sets forth an ill-defined scheme for identifying regionally significant visual and historic resources. The Proposed Regulations appear entirely silent on this issue. The DSGEIS appears to contemplate that local agencies would identify all visually and historically sensitive resources in their communities in advance of any permit applications. (See DSGEIS at 7-126 (“encouraging local agencies . . . to identify areas of high visual sensitivity, which may require additional visual mitigation”), citing Andrew Rumbach, “Natural Gas Drilling in the Marcellus Shale: Potential Impacts on the Tourism Economy of the Southern Tier” (“Rumbach”).) The DSGEIS suggests resources identified in this manner would trigger formal visual assessment in accordance with the Guidance Memorandum. (See also DSGEIS at 6-284-285.) The Proposed Regulations, however, do not appear to even require applicants to provide an inventory of aesthetic resources, as the Department’s Guidance Memorandum requires. (See Proposed Regulation § 560.3(a); see “Assessing and Mitigating Visual Impacts,” at 3.) As such, it is unclear how site specific visual impacts review would be triggered.

Again, municipalities should be notified of every complete application for drilling or hydraulic fracturing within their jurisdictions. See 6 N.Y.C.R.R. § 621.7(a)(1). Where the application is not prohibited by local legislation, municipalities should be given a reasonable amount of time to identify significant aesthetic and historic resources in the area of any proposed hydraulic fracturing operation. Cf. 6 N.Y.C.R.R. § 621.7(b)(6)(iii). If a municipality identifies a significant aesthetic resource in the area of any proposed operation, which the municipality can demonstrate through substantial evidence, could be significantly adversely impacted by such operation, the regulations should establish that it is a *prima facie* “substantive and significant issue” warranting resolution in an Adjudicatory Hearing before an ALJ. See 6 N.Y.C.R.R. § 621.8(b); see also N.Y. Mental Hygiene Law § 41.34(c)(5).

Moreover, permit specific visual and historic impacts analysis should consider the cumulative impacts of hydraulic fracturing on visual resources. As the Rumbach study cited by the Department states, the cumulative impacts of drilling “threaten to do serious damage to the

tourism sector by degrading visitor experiences and creating an industrial landscape that far outlives the profitability of gas extraction.” (Rumbach at 8; see also DSGEIS at 6-275 (“These impacts on visual resources or visually sensitive areas would be both site-specific (i.e., within views that contain individual well locations) and cumulative (i.e., within views of areas or regions that contain concentrations of well locations.”).) Again, municipalities should have the opportunity, upon notice of an application, to alert the Department of any concerns that a particular application may, by virtue of cumulative impacts with other applications or previously permitted projects, adversely impact visual resources.

## **G. Traffic**

The DSGEIS contains detailed requirements for applicants in preparing Transportation Plans. The DSGEIS recognizes that Transportation Plans are necessary because cumulative truck traffic could adversely impact local roads. The DSGEIS sets forth potential mitigation measures, including requiring Local Road Use Agreements. (DSGEIS Exec. Summ. at 19; see generally DSGEIS at 7-136 to 7-138.)

The Proposed Regulations, however, have a far less comprehensive requirement for a “Transportation Plan.” The Proposed Regulations do not even mention Local Road Use Agreements. This is surprising because the Department states that Local Road Use Agreements will be the “primary mechanism by which local governments can hold well operators accountable for damages and repairs to roads, bridges, and drainage structures that may be impacted by their excess use.” (DSGEIS at 7-138.) In addition, the Local Road Use Agreement requirement contemplated by the DSGEIS appears to create a loophole, which would enable applicants to avoid entering into such agreements.

First, the Proposed Regulations only require “a transportation plan indicating the planned route for delivery of raw materials and chemical additives to the site, the proposed route for transport of waste materials and an estimated number of truck trips associated with the same.” (See Proposed Regulation § 560.3(a)(20).) This contrasts markedly with the DSGEIS, which sets forth far more comprehensive requirements for Transportation Plans:

The Department would require, as part of any permit application, that the applicant submit a transportation plan. The transportation plan would identify the number of anticipated truck trips to be generated by the proposed activity; the times of day when trucks are proposed to be operating; the proposed routes for such truck trips; the locations of, and access to and from, appropriate parking/staging areas; and the ability of the roadways located on such routes to accommodate such truck traffic.

(DSGEIS at 7-136.) The DSGEIS also details the requirements in connection with Local Road Use Agreements, stating that “the owner or operator should attempt to obtain a road use agreement with the appropriate local municipality; if such an agreement cannot be reached, the reason(s) for not obtaining one must be documented in the Transportation Plan.” (Id.)

At a minimum, the Proposed Regulations must be revised to reflect the requirements imposed in the DSGEIS, including the scope of a Transportation Plan and information relating to a Local Road Use Agreement. Moreover, the DSGEIS appears to leave a loophole for an applicant to avoid Local Road Use Agreements, stating only that “if such an agreement cannot be reached, the reasons(s) for not obtaining one must be documented in the [applicant’s] Transportation Plan.” (DSGEIS at 7-138.) Again, municipalities must automatically be apprised of complete hydraulic fracturing applications within their jurisdictions. See 6 N.Y.C.R.R. § 621.7(a)(1). That notification should specifically set forth whether the applicant has entered into a Local Road Use Agreement with the municipality. If local legislation does not prohibit gas drilling, the municipality must be given reasonable time to object if the parties have failed to enter into a Local Road Use Agreement, or there exists any material deficiencies in such Agreement. Cf. 6 N.Y.C.R.R. § 621.7(b)(6)(iii). If the municipality objects to an Applicant’s lack of a Local Road Use Agreement, or identifies any deficiencies in a purportedly existing Agreement, the regulations should establish that it is a prima facie “substantive and significant issue” warranting resolution in an Adjudicatory Hearing before an ALJ. See 6 N.Y.C.R.R. § 621.8(b); see also N.Y. Mental Hygiene Law § 41.34(c)(5).

## **H. Cumulative Impacts**

### **1. Cumulative Impacts of Gathering Lines and Pipelines**

The DSGEIS states that “[g]athering lines and pipelines are not within the scope of project review as the PSC has exclusive jurisdiction to review these activities under the Public Service Law Article VII.” (DSGEIS at 3-7.) Cumulative impacts, however, apply to subsequent actions that are “likely to be undertaken as a result thereof” or “dependent thereon,” without regard to whether the project sponsor is one and the same. See 6 N.Y.C.R.R. § 617.7(c)(2). The Department cannot contend that gathering lines and pipelines built to handle hydraulic fracturing operations are not dependent on hydraulic fracturing.

As the Shale Gas Subcommittee of the SEAB recognizes specifically, this infrastructure is a critical component of hydraulic fracturing, which “can overwhelm ecosystems and communities:”

Intensive shale gas development can potentially have serious impacts on public health, the environment and quality of life – even when individual operators conduct their activities in ways that meet and exceed regulatory

requirements. The combination of impacts from multiple drilling and production operations, support infrastructure (pipelines, road networks, etc.) and related activities can overwhelm ecosystems and communities.

(SEAB Shale Gas Production Subcommittee Ninety-day Report, Aug. 11, 2011, at 4.)

Notably, the DSGEIS *does* factor in the cumulative impacts of transmission pipelines in rationalizing the special treatment for the New York City and Syracuse Watersheds. (See DSGEIS at 6-50 (“Gas transmission pipelines of various sizes would necessarily be cut through the watersheds, often in straight lines and down hills in a manner that can accelerate and channelize water during precipitation events.”).) Again, there is no rational reason for the Department to consider the cumulative impacts of transmission lines in the New York City and Syracuse Watersheds, while ignoring such impacts elsewhere..

## **2. Cumulative Impacts Of Exploitation Of Utica Shale, Infill Wells, and Lower Volume Wells**

The Department also needs to consider the cumulative impacts of the exploitation of multiple gas plays in Otsego County and other areas of New York State as the result of hydraulic fracturing. While much attention has been focused on the Marcellus Shale, which the industry believes is easier to access, the reality is that if the Department authorizes hydraulic fracturing, then more intense development of the Utica Shale or other formations is also foreseeable. The exploitation of the Marcellus Shale will likely precipitate the greater exploitation of the Utica Shale play or other formations, since certain necessary infrastructure, such as gathering lines and pipelines, will already exist. Otsego 2000 understands that at least one private corporation has already expressed an interest in exploiting both the Marcellus and Utica Shale plays, as well as intervening formations, in New York State.

Moreover, it is Otsego 2000’s understanding that the well spacing requirements proposed are not exclusive, meaning, for example, that multiple operations targeting different gas plays could be located within the same or overlapping spacing units. (See draft Section 553.1 of the Proposed Regulations.) The Department must confirm whether or not this is accurate. If Otsego 2000’s understanding is correct, the Department must also consider the cumulative impacts of the development of multiple operations within the same forty (40) acre or 640-acre spacing, or overlapping units, as the case may be.

The Department also needs to consider the cumulative impacts of allowing infill wells. As the Department knows, infill wells are drilled in irregular patterns without regard to normal target and spacing requirements. They require a variance from normal spacing requirements. If permitted, they will result in multiple infill wells in the original spacing unit.

Such infill wells would create additional impacts above and beyond the originally permitted operations. Similarly the Department must consider the cumulative impact of low volume wells and/or vertical wells in the region.

In light of the foregoing, the Department needs to consider how the exploitation of both of these gas plays, including infill wells, and low volume and/or vertical wells would affect the Department's projections of the impacts of hydraulic fracturing on areas of environmental concern in Otsego County, including to potable water resources, socioeconomic (including impacts on tourism and agriculture), visual, noise, transportation, and community character.

## **I. Socioeconomic Impacts**

Finally, but critically, the Department needs to reconsider its assessment of the socioeconomic benefits and adverse impacts of hydraulic fracturing, particularly in light of recent reappraisals of the potential economic benefits of said drilling process. In enacting SEQRA, the Legislature specifically declared its intent that agencies ultimately weigh the relative social, economic and environmental merits and disadvantages of a proposed action. See N.Y. Evtl. Conserv. L. § 8-103(7).

Recent reports indicate that the projections of gas that may be recoverable through hydraulic fracturing are seriously overstated in the DSGEIS, meaning that the Department's assessment of the economic benefits of hydraulic fracturing are grossly inflated. Virtually simultaneous with the issuance of the revised DSGEIS, the United States Geological Survey ("USGS") released its assessment that there are approximately eighty-four (84) trillion cubic feet ("Tcf") of gas in the Marcellus Shale in the entire Appalachian Basin. (See Coleman, et al, "Assessment of Undiscovered Oil and Gas Resources of the Devonian Marcellus Shale of the Appalachian Basin Province, 2011.; (USGS Fact Sheet 2011-3092 Aug. 23, 2011).) In contrast, the DSGEIS appears to rely on estimates asserting "a 50 percent probability that recoverable reserves could be as high as 489 Tcf." (See DSGEIS at 2-4.) For New York State, the Department relies on projections provided by the Independent Oil & Gas Association of New York ("IOGA-NY"), which the USGS assessment also indicates are suspect. (See DSGEIS at 6-207.) The IOGA-NY low development scenario, for example, projects that in New York State alone production of the Marcellus Shale could produce 29.1 Tcf of gas. (See Testimony of Ronald E. Bishop, Ph.D, C.H.O., before the Assembly Standing Committee on Environmental Conservation, Oct. 6, 2011 (copy annexed hereto as Exh. "\_\_\_").) This would equate to approximately 3.67 billion cubic feet ("BCF") of gas per mile. (Id.) In contrast, the USGS assessment indicates that there would be 1.56 BCF of gas per square mile. (Id.) The Department needs to reevaluate its assessment of the ostensible benefits of hydraulic fracturing in the Marcellus Shale. (See also, e.g., Ian Urbina, "Behind Veneer, Doubts on Future of Natural Gas,"

N.Y. Times at A1, June 27, 2011; Ian Urbina, “Insiders Sound an Alarm Amid a Natural Gas Rush: Productivity of Shale Wells Is a Concern – Investor Flood Spurs Talk of Bubble,” N.Y. Times at A1, June 26, 2011.)

The Department also needs to consider potential adverse socioeconomic impacts of hydraulic fracturing in relation to potential adverse impacts on municipal finances. (See Jannette M. Barth, Ph.D., “Critique of PPI Study on Shale Gas Job Creation,” dated Jan. 2, 2012 (copy annexed hereto as Exh. “\_\_”).) The DSGEIS recognizes that hydraulic fracturing could cause the contraction of sectors that are critical to Otsego County’s economy, including tourism and agriculture. (See DSGEIS at 6-230 to 6-231 (“[S]ome industries in the regional economies may contract as a result of the proposed natural gas development. Negative externalities associated with the natural gas drilling and production could have a negative impact on some industries such as tourism and agriculture.”))

The DSGEIS fails to consider the full impact of hydraulic fracturing on tourism. It fails, for example, to “recognize the current and potential economic importance from th[e] sense of place” provided by the various cultural and other components that make Otsego County attractive. (See Ravage Comments at 2.) “Development on a radically different scale [as the result of hydraulic fracturing] will not only be visually intrusive, it will alter for many years, possibly forever, the potential economic benefits of the region’s intact cultural landscapes.” (Id.)

The contraction of tourism and other vital industries as the result of hydraulic fracturing could, in turn, adversely impact property values, causing a substantial decrease in County, municipal and school district tax revenues. (See Harry Levine, “The Fiscal Effects of Fracking in Otsego County, N.Y.,” Aug. 15, 2011 (copy annexed hereto as Exh. “\_\_”).) Related to this, the DSGEIS fails to rationally consider the lost “opportunity costs” resulting from hydraulic fracturing. Another foreseeable adverse impact of hydraulic fracturing is the foregone economic development of the “next best use” of the land. (See Letter to Hon. Andrew M. Cuomo from Jannette Barth, Ph.d, et al, dated Dec. 14, 2011, at 6.) Such foregone opportunities are characterized by economists as lost opportunity costs. (Id.) The DSGEIS presently assigns these lost economic costs a value of zero, which is irrational. (Id.) Again, the DSGEIS already recognizes that hydraulic fracturing could contract economic sectors, such as tourism and agriculture, which are critical to Otsego County’s economy. (See DSGEIS at 6-230 to 6-231.)

### **POINT III**

#### **ADDITIONAL COMMENTS ON DRAFT REGULATIONS**

Respectfully, the Department cannot rationally adopt the labor-intensive review scheme contemplated by the draft proposed regulations until it understands the potential cost to it and other agencies, and determines if the necessary resources are available to support the

applicable review scheme. The Regulatory Impact Statement (“RIS”) issued by the Department concedes that the Department has no conception of the “specifics and magnitudes of the actual costs” that it and other agencies would incur as the result of administering this complicated hydraulic fracturing review process:

*The specifics and magnitude of actual costs that may be incurred by DEC and other state agencies cannot be estimated at this time. Based on DEC's experience and existing program costs and examination of programs in other states, the implementation of these regulations can be expected to require a significant staff increase from the existing staffing levels of the Division of Mineral Resources and increase the need for additional staff to all the other divisions listed, as well as create a need for significant staffing increases in the affected regional offices.*

(RIS, (emphasis added).) The RIS’s recognition that the regulations will require “significant staffing increases” appears to also be at odds with Otsego 2000’s understanding that the Department is short-staffed.

Similarly, the RIS also concedes that it does not know how much the hydraulic fracturing permitting scheme would strain Otsego County’s DOH resources, stating “[t]he extent of the costs to county health departments will be complaint driven and cannot be quantified at this time.” As Otsego 2000 pointed out in its comments on the original DSGEIS, Otsego County, “does not have a fully staffed DOH, and would be incapable of handling the potential contaminant issues that the DSGEIS seeks to foist upon it.” (2009 Comments at 3.) Adopting regulations without understanding the costs of their implementation or whether sufficient governmental resources exist to sustain the contemplated regulatory scheme would jeopardize the public health, safety, and general welfare.

The proposed regulations indicate that they would improperly extend the duration of permits that are not being utilized. The Department offers no rationale for quadrupling the time within which operations must be commenced after receipt of a permit from 180 days to “two calendar years.” (See draft Section 552.2(c) of the Proposed Regulations.) An owner/operator’s failure to undertake diligent operations in 180 days is a red flag, since it may, for example, reflect solvency issues or other problems bearing on an owner/operator’s viability. As such, the passage of six (6) months without activity should automatically trigger Department reevaluation of said owner/operator’s capabilities.

The proposed regulations would also improperly allow previously issued permits to be “reissued” to new owner/operators without any assessment by the Department of such owner/operators capabilities. The proposed revision to Section 552.3(a) improperly lacks criteria

to guide the “reissuance” of a permit to “new” owner/operators. This Section pertains to Staff decisionmaking for requests to reissue permits to new owners and operators (inasmuch as drilling permits are nontransferable). Given the risks inherent in hydraulic fracturing, the Department should ensure that no permit is reissued until the new proposed owner and/or operator provides verifiable evidence establishing that it is capable of safely conducting hydraulic fracturing operations. Moreover, applications for reissuance should be on notice to the public, with mail notice to the affected municipality.

The proposal to eliminate Public Hearings on well spacing variance requests is also inappropriate. (See draft Section 553.4(a) of the Department’s regulations.) Such variances could compound the adverse impacts of hydraulic fracturing. As noted above, for example, infill wells, which require variances, would create impacts beyond the drilling operation originally permitted in a 40-acre spacing unit. The affected public should have the right to be heard on variance requests. Similarly, the proposed fifteen (15) day window for “public comment” on variance requests is too short. Forty-five (45) days would be more appropriate. This would give the affected public, including municipalities, the ability to evaluate the variance request and provide meaningful comments.

The proposed Section 556(g) appears to improperly contemplate enabling Department Staff to allow operators to change previously approved plans without criteria, and regardless of the magnitude of the proposed revision. Under this regulation, operators apparently could request altering their previously approved operational plans simply by submitting a “Sundry Well Notice and Report Form,” which Staff could authorize without any guidelines. (See draft Section 556.2(g) of the Department’s regulations.) The Department should establish criteria to distinguish “major” plan modifications, which the public and host communities should have notice and an opportunity to comment upon. Moreover, the Department should establish criteria to guide Staff decisionmaking on modification requests, including determining whether such modifications pose potential significant adverse environmental impacts that have not been previously examined. Cf. 6 N.Y.C.R.R. § 617.9(a)(7) (criteria for supplemental environmental impact statements under SEQRA).

## **CONCLUSION**

The Department, respectfully, must complete the data collection and analytic work that is necessary to ensure that hydraulic fracturing only occurs where it poses no irreversible impact to the quality of the human environment, and that it only be allowed to be conducted in a manner consistent with the public health, safety, and general welfare.

The Department should also allow time for the public to comment on the necessary revisions to the DSGEIS. As noted in Otsego 2000’s 2009 Comments, until the public is given an opportunity to comment upon a complete document, the public has not been given its

lawful right to a meaningful public hearing. See In re Amenia Sand & Gravel, 1997 WL 1879249, at \*8 (DEC File No. 3-1320-00030/2 June 16, 1997) (Rulings of the Administrative Law Judge on Party Status and Issues), appeal denied, 1997 WL 628371 (N.Y. D.E.C. Aug. 27, 1997) (Interim Decision of Deputy Commissioner).

Inasmuch as the ten (10) day “cooling off” period following the issuance of an FEIS does not automatically trigger a public right to comment, see 6 N.Y.C.R.R. § 617.11(a), the Department, respectfully, should make special provisions to ensure that the public has an opportunity to comment on the revisions that the Department must make to its analysis. See Webster Assocs. v. Town of Webster, 59 N.Y.2d 220, 464 N.Y.S.2d 431, 433 (1983).

Please do not hesitate to contact Otsego 2000 should the Department have any questions or comments concerning these comments, or would like Otsego 2000 to expand on any of the areas discussed herein.

Dated: January 10, 2012  
White Plains, New York

Respectfully,

ZARIN & STEINMETZ

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