

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NEW YORK

DAVID R. MORABITO and COLETTE M.G. MORABITO

Plaintiffs

vs

CIVIL ACTION
Case No.

THE STATE OF NEW YORK, THE STATE OF
NEW YORK DEPARTMENT OF ENVIRONMENTAL
CONSERVATION, and BASIL SEGGOS, ACTING
COMMISSIONER, NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

Electronically Filed

COMPLAINT FOR
DAMAGES FOR
VIOLATION OF FEDERAL
CIVIL RIGHTS (42 U.S.C. §1983)

DEMAND FOR JURY TRIAL

Defendants

COMPLAINT

David R. Morabito, Esq. and Colette M. G. Morabito assert the following claims seeking compensation against New York State, New York State Department of Environmental Conservation (“Department”), and Basil Seggos, Acting Commissioner of New York State Department of Environmental Conservation, in his official capacity, and in support thereof, allege as follows:

JURISDICTION

1. This is an action through 42 U.S.C. §1983 against the State of New York, New York State Department of Environmental Conservation and Basil Seggos, Acting Commissioner of New York State Department of Environmental Conservation for a

violation of the Takings and Due Process Clauses of the United States Constitution.

2. This Court has jurisdiction pursuant to 28 U.S.C. §1331 and 42 U.S.C. §1983.

3. Plaintiffs seek just compensation under the Fifth Amendment of the United States Constitution and damages under the Due Process Clause.

4. On or about June 29, 2015, Defendants “officially” prohibited high-volume hydraulic fracturing (HVHF) thereby preventing and prohibiting the ability of Plaintiffs to extract their natural resources on their property(s) located in the Western District of New York.

5. Defendants’ decision to prohibit HVHF constitutes a final decision applying land-use regulations on the Plaintiffs’ property(s). An actual controversy therefore exists between the parties.

6. Venue in this District is proper under 28 U.S.C. §1391(b) because a substantial part of the events or omissions giving rise to Plaintiffs’ claims occurred in this District. The property(s) are located in the Western District of New York. Property taxes are paid in the Western District of New York. Domicile and residence of Plaintiffs are located in the Western District of New York. The Defendants have numerous offices located in the Western District of New York. The permitting application(s) would be filed and/or submitted for approval in the Western District of New York. The mineral resources subject to this claim are located in the Western District of New York.

PARTIES

7. That at all times hereinafter mentioned, Plaintiffs are residents of the

County of Monroe in the State of New York and are the fee simple owners of property(s) located in the Counties of Monroe and Allegany in the State of New York and located within the Western District of New York.

8. Defendant is the State of New York.

9. Defendant New York State Department of Environmental Conservation is an agency of the State of New York with offices located throughout the State of New York.

10. Upon information and belief, Defendant Basil Seggos is the Acting Commissioner of the New York State Department of Environmental Conservation. On information and belief, Seggos previously served as Deputy Secretary for the Environment and Assistant Secretary for the Environment in Governor Cuomo's administration before being appointed Acting Commissioner of New York State Department of Environmental Conservation in October of 2015. On information and belief, Seggos is a citizen of the State of New York. Seggos is sued herein in his official capacity.

PROCEDURAL BACKGROUND

A. Exhaustion of Administrative Remedies

11. That Plaintiff(s) have previously contacted the New York State Department of Environmental Conservation (Department) over a number of years seeking permission to receive a permit or to commence the permit process to conduct high-volume hydraulic fracturing (HVHF) on their property(s) located in Western New York.

12. Upon information and belief, that on January 16, 2015, Bradley J. Field, former Director of the Division of Mineral Resources for the Department was directed by

former Commissioner Martens to inform Plaintiff(s) that the prohibition for high-volume hydraulic fracturing in the State of New York applied to all owners of property in New York including Plaintiff(s). Said communication was received by Plaintiff(s) on or about January 29, 2015.

13. That the denial for Plaintiff(s) to commence the process or receive a permit to conduct HVHF was based on arbitrary or capricious actions taken by the former Commissioner and former Director of the Division of Mineral Resources for the Department and the State of New York.

B. Exhaustion of State Remedies

14. Plaintiff(s), landowners with properties in Western New York commenced an Article 78 action in Allegany County arguing that Defendants' denial of Plaintiff(s)' request to obtain a permit or to commence the process to obtain a permit to conduct HVHF on their properties was arbitrary, capricious and violated Plaintiff(s)' rights to due process of law under the Constitutions of the United States and New York State. The proceeding was brought by the Plaintiff(s) to require the Defendants to allow HVHF on their own properties. The legal proceedings originated in the New York State Supreme Court-County of Allegany but were transferred to Albany County. Defendants moved to dismiss the Article 78 proceeding arguing that Plaintiff(s), among other things, did not have standing.

15. That on February 10, 2016 the Hon. Lisa M. Fisher, Supreme Court Justice granted Defendants' Motion to Dismiss the Petition in its entirety. A Notice of Appeal was timely filed by Plaintiff(s) on or about March 3, 2016.

16. Thereafter, the below-stated arguments were raised in the appeal to the New York State Supreme Court Appellate Division-Third Department. The appellate court, on April 13, 2017, held that the Plaintiff(s) lacked standing and the other issues were rendered “academic.” The four (4) appellate issues raised:

(1) The trial court erred in dismissing the Article 78 Amended Petition under CPLR 3211(1), (2) and (7) as the trial court incorrectly found that Plaintiff(s) had no standing. The trial court applied an incorrect standard amounting to a summary judgment standard by deciding questions of fact, rather than determining if the Amended Petition stated a claim. It was strongly asserted that the purpose of pleadings is to give notice of a claim and to state material elements of a cause of action. As long as a pleading states a cause of action, the Plaintiff(s) need not provide affidavits or evidence, unless the motion has been converted on notice to the parties to a summary judgment motion (see CPLR 3211 (c)). The trial court did not give any notice to Plaintiff(s) that the Motion to Dismiss was being converted to a Summary Judgment Motion. It was respectfully submitted that the Amended Petition pled multiple causes of action that were factually supported and converting the Motion to Dismiss to a Summary Judgment Motion was incorrect.

(2) The trial court erred in dismissing the Article 78 Amended Petition as Plaintiff(s) had standing. In its pleadings, Plaintiff(s) clearly established that there was serious environmental and economic injury by the temporary and eventual permanent ban on high volume hydrofracking by Defendants. The Plaintiff(s) had suffered direct harm and the injury was clearly different and distinguished from the public at large. In regard to the failure to exhaust administrative remedies, Plaintiff(s) could not apply for a permit to conduct HVHF during Defendants’ temporary ban for at least five years as there were Executive Orders issued by Governor Patterson and Governor Cuomo prohibiting the issuance of any permits for HVHF. Finally, the Defendants’ decision to permanently ban HVHF on Plaintiff(s)’ properties has caused a “taking” under the New York State Constitution and the United States Constitution-Fifth Amendment as the viability of economic benefit had been severely diminished to very minimal economic value of the lands.

(3) This case should have been remitted to a sponsored judge who had participated in a program covering the basic mechanical aspects of HVHF on the Marcellus shale. The National Judicial College, through the New York State Judicial Institute and Office of Court Administration, invited judges from New York, Pennsylvania, Ohio and West Virginia to attend an HVHF training program. This program covered the mechanical aspects of HVHF on the Marcellus shale

plays and regulations. It was respectfully submitted that the Appellate Court recognize that a special expertise should be required to properly adjudicate claims involving HVHF. The Plaintiff(s) respectfully requested a remittal to a HVHF judge who participated in the program. Upon information and belief, two of the four trained judges in the State of New York are located in the Eighth Judicial District, one of which is located in Allegany County, where the petition was originally venued.

(4) The case should have been remitted to another judge as the trial court had clearly established preconceived and prejudicial presumptions that Plaintiff(s) would never be able to overcome as the trial court in its final Decision/Order/Judgment held that this case was “lacking in merit.” The burden upon Plaintiff(s) would be insurmountable to overcome the views, opinions, positions and determinations of the trial court. Further, Plaintiff(s) were never given the opportunity to appear before the trial court for oral argument though requested. Plaintiff(s) acknowledge that there is no statutory or common law rule that demanded that a litigant have the opportunity to personally appear before the trial court. Oral argument would have been an opportunity for Plaintiff(s) to defend their theory of the case and engage the trial court in a conversation about key legal and factual issues.

17. That Plaintiff(s) filed motions dated April 20, 2017 at the New York State Court of Appeals seeking leave to appeal from an Order of the New York State Supreme Court-Appellate Division-Third Department dated April 13, 2017. The Plaintiff(s) raised the below-stated issues:

(1). That an appeal may be taken to the New York State Court of Appeals as of right pursuant to NYS CPLR §5601(b)(1)) from an order of a New York State Supreme Court Appellate Division involving a constitutional issue of the State of New York or of the United States Constitutions.

(2) That the order of the New York State Supreme Court Appellate Division-Third Department determined that Plaintiff(s) lacked standing, and therefore, the constitutional issues raised on the appeal were “rendered academic.” Nevertheless, the constitutional issues raised in the appeal should have been addressed by the New York State Court of Appeals as the Defendants’ decision to permanently ban high volume hydrofracking (HVHF) has caused a “taking” under the New York State Constitution (Article 1 §7) and the United States Constitution (Fifth Amendment).

(3) That, alternatively, an appeal may be taken to the New York State Court of Appeals pursuant to NYS CPLR §5602(a)(1)(i)) upon permission as a direct application involving matters of “State-Wide Importance.”

(4) That the order of the New York Supreme Court Appellate Division-Third

Department, as herein stated, held that Plaintiff(s) lacked standing. However, it was most respectfully submitted that the multiple issues presented to the appellate court, as set forth above, were equally important as matters of “State-Wide Importance.”

(5) That this appeal directly addressed the propriety of the Executive Orders of Governors Patterson and Cuomo in ordering a permanent ban upon all HVHF in the State of New York. This ban has had an enormous negative impact involving potentially billions of dollars that will not be generated in the State of New York by extracting natural resources, building infrastructure and lack of economic investment.

(6) Defendants’ own studies in the Revised Draft Supplemental Generic Environmental Impact Statement (Revised dSGEIS) addressed studies allowing HVHF in the State of New York would bring prosperity to Western New York, and in particular, the Southern Tier of New York. Further, there would be enormous tax revenues to the Empire State. “State-Wide Importance” was an understatement.

18.The motion seeking leave to appeal form the New York State Supreme Court-Appellate Division Third Department was denied in an Order dated September 7, 2017 and received by Plaintiff(s) on or about September 18, 2017.

PRELIMINARY FACTUAL BACKGROUND

19. That the Department has conducted very extensive and detailed studies for “fracking and HVHF” to be conducted in the State of New York. During the past twenty-five (25) years, the Department has thoroughly analyzed, critiqued and deciphered extensive studies and conducted research involving high-volume hydraulic fracturing. The Department has established and promulgated extensive proposed rules and regulations to preserve the needed conservation practices of soil, water, and air quality in protecting the best interests of all residents and citizens of the State of New York. The Department has generated many thousands of pages in its Generic Environmental Impact Statement, Supplemental Generic Environmental Impact Statement, draft Supplemental Generic Environmental Impact Statement and the Revised draft Supplemental Generic Environmental Impact Statement(GEIS, SGEIS

dSGEIS and Revised dSGEIS). These studies have clearly set forth that high-volume hydraulic fracturing (HVHF) in the State of New York is a viable and acceptable practice of retrieving and extracting the enormous gas reserves in Western New York and in particular, the Southern Tier of New York incorporating Plaintiff(s)' properties.

20. That the below-stated, as set forth in the Statement of Facts, is merely a synopsis of very extensive reports of the GEIS, SGEIS, dSGEIS and Revised dSGEIS, along with the State Environmental Quality Review Act (SEQRA). These reports have concluded that high-volume hydraulic fracturing is a safe and useful means in the extraction of New York State gas reserves.

21. That the New York State Department of Environmental Conservation had previously filed Notices of Continuation with the Department of State that extended the rule-making process in order to give the New York State Commissioner of Health, Dr. Nirav Shah, time to complete their review of the Revised draft Supplemental Generic Environmental Impact Statement (Revised dSGEIS). It was alleged by the Department that the previous extensions were necessary, in part, in order to have consultation with "outside experts" of whether the Department had adequately addressed potential impacts to public health. Dr. Shah's health review was completed during the Fall of 2014.

22. That the Commissioner of Health's study was in direct conflict with the extensive studies, for the past twenty-five (25) years, by the Department which set forth that hydraulic fracturing could be done safely in the State of New York.

23. The "study" by the Department of Health was based on speculation and conjecture. Further, the "study" was not based on science, geology or technology but

rather politics. As a result, the actions taken by the Department in denying the Plaintiff(s) the right to commence the process to obtain a permit, or to issue a permit, was clearly arbitrary, irrational, capricious, violated their constitutional rights and that said denial was not based on science, geology or technology. .

24. That the Department, through its multiple studies, proposed very strict regulations to ensure potential environmental impacts resulting from “HVHF” were mitigated to the maximum extent practical that is consistent with the legislative objectives in the Environmental Conservation Law (ECL). The extensive provisions provided the Department with power to regulate drilling, casing, operation, plugging, replugging and posting a financial security for wells and reclamation of the lands.

25. That the Department rules and regulations further promulgated many mitigation measures specified in the extensive studies for: blow out preventer use and testing plan; detailing mapping; enhanced disclosure of chemical additives; and well pad site setbacks to name a few. The chemical disclosure is required to identify each chemical constituent intentionally added to the base fluid and its proposed concentration. The promulgations also established a process for review of permit applications, including a fifteen (15) day public comment period, and provisions for collection of fees. The proposed revised rules also contained detailed well construction, site preparation operation and maintenance requirements.

26. The proposed rules and regulations furthered New York State’s legislative goals by ensuring that wells are properly constructed and operated, while facilitating the State’s goal to provide for the efficient development, production and utilization of natural resources of oil and gas in such a manner as to prevent injury to the operator, mineral

rights' owners and the State as a whole. Continuing, the proposed rules and regulations provided broad authority to the ECL for the protection of the waters of the State of New York. Further, the hereinstated rules and regulations were declared to be a public policy of the State to maintain reasonable standards of water purity and authorize the Department to prevent the pollution of the waters of the State in accordance with water quality standards.

27. The hereinstated rules and regulations initiated pursuant to the multiple studies, as set forth herein, were greatly in excess of the standards established by the United States Environmental Protection Agency (EPA) or any other state in the United States and strictly prohibited HVHF activities and discharges within specified distances from water resources. The prohibitions specifically dealt with flowing water intakes and private well water wells. The proposed regulations detailed the conditions that must be satisfied involving the injection of water, gas or other material into a well, disposal well and facilities for the production of gas resources.

28. Additionally, the proposed rules also included: a list of certifications required by the applicant; the need to develop a comprehensive storm water pollution prevention plan; the need to submit documentation of the anticipated depth of the top of the objective formation and the depth of base of a known fresh water supply, along the proposed length of the well bore; best management practices for construction, reclamation and drilling relative to HVHF operations; requirements that all HVHF waste water would be treated, recycled or otherwise disposed of; monitoring, reporting and recording requirements, testing requirements for residential water wells; and a groundwater monitoring program.

29. The Department also had established extensive rules and regulations in regard to the responsibility to exercise care, custody and control of State owned lands and to make rules and regulations governing their use. The ECL also provided the Department with the authority to receive and accept land for conservation, watershed protection, forest management and to conserve rare plants and ecological communities on private and State owned lands and lands under the jurisdiction of the Department. The extensive rules and regulations proposed by the Department fulfilled the legislative objectives by ensuring that the production of natural gas using HVHF was done with the most advanced and regulatory oversight possible.

30. As will be set forth below, the extensive rules and regulations established by the Department through its multiple studies established conditions to ensure that well operators obtain adequate financial security to cover the cost of plugging deep wells, provide the regulated community with sufficient time to commence operations, and specify requirements for properly plugging and abandoning wells. The Department established rules that would ensure the minimization of the potential environmental impacts to New York's water resources, ecosystems, and air quality as well as the impact of HVHF on communities where these wells were expected to be drilled. The regulatory rules would inform and serve the public and regulate the ability to monitor and enforce measures identified in the Revised dSGEIS and allow update of the Department's regulations to reflect technological advances in the current industry practices.

31. Further, the Department's regulations and analysis had provided for a balanced use of both the surface environment and the natural gas in the subsurface, as

well as promote a greater level of environmental protection that would not be the case without the regulations. Clearly, greater environmental protections, as promulgated by the Department, included minimization of the probability in risk to uncontaminated aquifers and drinking water wells, streams and surface waters, and maintaining the passive use of natural resources.

32. Simply, the rules and regulations promulgated by the Department were more detailed, more concise, more stringent and had a greater impact in preserving water resources of the State of New York than any other state in the United States and the Federal EPA rules and regulations.

33. As will be set forth below, the actions taken by the State of New York, whether by the Governor, Commissioner of the Department of Health or the former and current Acting Commissioner of the Department of Environmental Conservation are not based on science, technology or even conservation. Rather, the actions taken by the Defendants are based on speculation, conjecture, misinterpretation of extensive studies conducted by the Department of Environmental Conservation, other conservation departments in other states and even the United States government. Unequivocally, the decision of the Defendants in barring the Plaintiff(s) the right to obtain a permit or the right to commence the process to obtain a permit to conduct high-volume hydraulic fracturing and conducting their own HVHF on their own private lands is arbitrary, irrational, capricious, meritless, not based on science, technology, best management practices and constituted a Taking in violation of the United States Constitution. .

FACTUAL BASIS FOR RELIEF

34. High-volume hydraulic fracturing (HVHF) is a well stimulation technique

that has greatly increased the ability to extract natural gas from very tight rock. High-volume hydraulic fracturing, which is often used in conjunction with horizontal drilling and multi-well pad development, is an approach to extracting natural gas in New York. Increased production of domestic natural gas resources from deep underground shale deposits in other parts of the country has dramatically altered future energy supply projections and has the promise of lowering costs for users and purchasers of this energy commodity. High-volume hydraulic fracturing is distinct from other types of well completion that have been allowed in the State of New York under the 1992 GEIS. The use of high volume hydraulic fracturing with horizontal well drilling technology provides for a number of wells to be drilled from a single well pad (multi-pad wells). Horizontal drilling results in fewer well pads than traditional vertical well drilling.

35. In New York State, the primary target for shale-gas development would be the Marcellus Shale, with the deeper Utica Shale also identified as a potential resource. Additional low-permeability reservoirs may be considered by project sponsors for development by high-volume hydraulic fracturing. The Department had received applications for permits to drill horizontal wells to evaluate and develop the Marcellus Shale for natural gas production by high-volume hydraulic fracturing. The Department had prepared the Revised draft Supplemental Generic Environmental Impact Statement (Revised dSGEIS) to satisfy the requirements of the State Environmental Quality Review Act (SEQRA) by studying the new technique and identifying and correcting any potential adverse impacts for these anticipated operations.

A. REVISED DRAFT SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT (Revised dSGEIS)

36. The Department prepared the Revised draft SGEIS to satisfy the requirements of the SEQRA for the future enactment of revisions or additions to the Department's regulations associated with high-volume hydraulic fracturing. In reviewing and processing permit applications for high-volume hydraulic fracturing in these deep, low-permeability formations, the Department would apply the requirements contained within regulations, along with the multiple studies and the findings drawn from them, including criteria and conditions for future approvals. The final SGEIS would apply statewide, except in areas that the Department proposed would be off-limits to surface drilling for natural gas using high-volume hydraulic fracturing technology. As stated below, these areas include the watersheds associated with unfiltered water supplied to the New York City and Syracuse areas pursuant to Filtration Avoidance Determinations issued by the U.S. Environmental Protection Agency (EPA), reforestation areas, wildlife management areas, and "primary" aquifers as defined by New York State regulations, and additional setback and buffer areas. Forest Preserve land in the Adirondacks and Catskills is already off-limits to natural gas development pursuant to the New York State Constitution.

37. The public process to eventually develop the Revised dSGEIS began with public scoping sessions in the autumn of 2008 for the preparation of the dSGEIS. Since then, engineers, geologists and other scientists and specialists in all of the Department's natural resources and environmental quality programs collaborated to comprehensively analyze a vast amount of information about the proposed operations and the potential significant adverse impacts of these operations on the environment, identify mitigation measures that would prevent or minimize any significant adverse

impacts, and identify criteria and conditions for future permit approvals and other regulatory action.

38. In September 2011, the Department issued a Revised dSGEIS for public review and comment. This very extensive report was a compilation of a number of topics including visual, noise, traffic, community character or socioeconomic impacts.

39. Pursuant to the above-stated studies, the Department addressed concerns of the public in its proposed rules and regulations. The Department gained a detailed understanding of the potential impacts associated with horizontal drilling from: (i) the extensive public comments from environmental organizations, municipalities, industry groups and other members of the public; (ii) its review of reports and studies of proposed operations prepared by industry groups; (iii) extensive consultations with scientists in several bureaus within the New York State Department of Health (NYSDOH); (iv) the use of outside consulting firms to prepare analyses relating to socioeconomic impacts, as well as impacts on community character, visual ,noise and traffic impacts; and, (v) its review of information and data from the State of Pennsylvania.

40. The Revised draft SGEIS contained revised and additional analyses relating to high-volume hydraulic fracturing operations compared to the 2009 dSGEIS. The Revised draft SGEIS, which is summarized below, is divided into ten (10) separate chapters to establish that the actions taken by the Commissioner and Director of the Division of Mineral Resources in denying the Plaintiffs' permit or ability to commence the process is arbitrary, capricious, irrational and unconstitutional.

41. Clearly, upon review of the multiple studies of the past twenty-five (25) years

by the Department sets forth that the Final Supplemental Generic Environmental Impact Statement, which is the basis of the denial of Plaintiffs to extract their natural resources, establishes that the decision to permanently ban high volume hydrofracking is a complete sham and a constitutional “taking.” Accordingly, it is necessary to review the ten (10) chapters of the Revised dSGEIS that was a compilation of twenty-five (25) years of science, technology and research.

42. The below-stated clearly established that the Department analyzed in great detail, every potential issue that could have arisen during the HVHF process and had established and promulgated very extensive rules and regulations to minimize and prevent any ecological mishaps.

43. The first chapter contained an introduction to the Revised dSGEIS. This Chapter summarized the changes in high-volume hydraulic fracturing operations seen since the 2009 SGEIS, described the methodology of this environmental review, and highlighted enhanced mitigation and new precautionary measures incorporated into the document.

44. More particularly, the first chapter set forth that the Department of Environmental Conservation (Department) received applications for permits to drill horizontal wells to evaluate and develop the Marcellus and Utica Shales for natural gas production. Plaintiffs have property(s) that are located in the hereinstated shale formations.

45. There is also potential for development of other shale and low-permeability formations in New York State that may also be targeted for future application of horizontal drilling and high-volume hydraulic fracturing on Plaintiffs’ property(s). The

Department prepared the Revised draft Supplemental Generic Environmental Impact Statement (Revised dSGEIS) to satisfy the requirements of the State Environmental Quality Review Act (SEQRA) for these anticipated operations in multiple counties that Plaintiffs own property(s) in. In reviewing and processing permit applications for horizontal drilling and hydraulic fracturing in these deep, low permeability formations, the Department would apply the findings and requirements of the multiple studies, including criteria and conditions for future approvals, in conjunction with the existing Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program, issued by the Department in 1992 (1992 GEIS).

46. The Department specifically addressed the following areas of promulgating rules and regulations for the below stated in Chapter 1:

HYDRAULIC FRACTURING AND MULTI-WELL PAD DRILLING ;

Significant Changes in Proposed Operations Since 2009;
Use of Reserve Pits or Centralized Impoundments for Flowback Water ;
Flowback Water Recycling;

REGULATORY JURISDICTION;

STATE ENVIRONMENTAL QUALITY REVIEW ACT;

PROJECT CHRONOLOGY;

February 2009 Final Scope;
2009 Draft SGEIS;
April 2010 Announcement Regarding Communities with Filtration Avoidance Determinations;
Subsequent Exclusion of Communities with Filtration Avoidance Determinations;
Revised Draft SGEIS;
Next Steps ;

METHODOLOGY ;

Information about the Proposed Operations;
Intra-/Inter-agency Coordination;
Comment Review;

LAYOUT AND ORGANIZATION;

Chapters;
Revisions;
Glossary, Bibliographies and Appendices;

ENHANCED IMPACT ANALYSES AND MITIGATION MEASURES;

Hydraulic Fracturing Chemical Disclosure;
Water Well Testing;
Water Withdrawal and Consumption;
2009 Draft SGEIS;
Revised Draft SGEIS;
Well Control and Emergency Response Planning;
Local Planning Documents;
Secondary Containment, Spill Prevention and Stormwater Pollution Prevention;
Well Construction;

2009 Draft SGEIS;
Revised Draft SGEIS;
Flowback Water Handling On-Site;
Flowback Water Disposal;
Management of Drill Cuttings;
Emissions and Air Quality;
2009 Draft SGEIS;
Revised Draft SGEIS;
Greenhouse Gas Mitigation;
Habitat Fragmentation;
State Forests, State Wildlife Management Areas and State Parks;
Community and Socioeconomic Impacts;
ADDITIONAL PRECAUTIONARY MEASURES;

47. The second chapter set forth and included a discussion of the purpose, public need and benefit of proposed high volume hydraulic fracturing operations, as well as the potential locations, projected activity levels and environmental setting for such operations. Information on the environmental setting focused on topics determined during scoping to require attention in the SGEIS. The Department had determined, based on industry projections, that it may receive applications to drill approximately 1,700 - 2,500 horizontal and vertical wells for development of the Marcellus Shale by high-volume hydraulic fracturing during a “peak development” year. An average year may see 1,600 or more applications. Development of the Marcellus Shale in New York State may occur over a 30-year period. Those peak and average levels of development are the assumptions upon which the analyses contained in this Revised dSGEIS are based. A consultant to the Department had completed a draft estimate of the potential economic and public benefits of proposed high volume hydraulic fracturing development, including an analysis based on an average development scenario as well as a more conservative low potential development scenario. That analysis calculated for each scenario the total economic value to the proposed operations, potential state and local tax revenue, and projected total job creation.

48. Wells where high-volume hydraulic fracturing is used may be drilled vertically, directionally or horizontally. The proposed action did not include horizontal drilling where high-volume hydraulic fracturing was not employed. Such drilling is covered under the GEIS. Hydraulic fracturing is a well stimulation technique which consists of pumping an engineered fluid system and a proppant such as sand down the wellbore under high pressure to create fractures in the hydrocarbon-bearing rock. The fractures serve as pathways for hydrocarbons to move to the wellbore for production. High-volume hydraulic fracturing is also referred to as “slick water fracturing.” An individual well treatment may consist of multiple stages (multi-stage frac). Further information on high-volume hydraulic fracturing, including the composition of the fluid system, is provided in Chapter 5. Multiple wells may be drilled from a common location (multi-well pad, or multi-well site). More information about these activity estimates and the factors which could affect them is presented in Chapter 5. This Revised dSGEIS was focused on topics not addressed by the 1992 GEIS, with emphasis on potential impacts associated with the large volumes of water required to hydraulically fracture horizontal shale wells using the slick water fracturing technique and the disturbance associated with multiwell sites. An additional aspect of this Revised dSGEIS was to consider measures that will be incorporated into revisions or additions to the Department’s regulations concerning high-volume hydraulic fracturing.

49. The Department specifically addressed the following areas of promulgating rules and regulations for the below stated in Chapter 2:

PURPOSE ;
PUBLIC NEED AND BENEFIT;
PROJECT LOCATION ;
ENVIRONMENTAL SETTING;
Water Use Classifications;

Water Quality Standards;
Drinking Water;
Federal;
New York State ;
Public Water Systems ;
Primary and Principal Aquifers ;
Public Water Supply Wells;
Private Water Wells and Domestic-Supply Springs ;
History of Drilling and Hydraulic Fracturing in Water Supply Areas ;
Regulated Drainage Basins ;
Delaware River Basin ;
Susquehanna River Basin;
Great Lakes-St. Lawrence River Basin;
Water Resources Replenishment ;
Floodplains ;
Analysis of Recent Flood Events;
Flood Zone Mapping;
Seasonal Analysis;
Freshwater Wetlands;
Socioeconomic Conditions;
Economy, Employment, and Income;
Population;
Housing;
Government Revenues and Expenditures;
Environmental Justice;
Visual Resources;
Historic Properties and Cultural Resources;
Parks and Other Recreation Areas;
Natural Areas;
Additional Designated Scenic or Other Areas;
Noise;
Noise Fundamentals;
Common Noise Effects;
Noise Regulations and Guidance;
Existing Noise Levels;
Transportation - Existing Environment;
Terminology and Definitions;
Regional Road Systems;
Condition of New York State Roads;
NYSDOT Funding Mechanisms;
Rail and Air Services;
Community Character;
Primary and Principal Aquifers in New York State;
Susquehanna and Delaware River Basins;
Representative Regions Within the Marcellus Shale Extent (New August 2011);
Representative Regions A, B, and C (New August 2011);
Region A: Natural Gas Production, 1994 to 2009 (New August 2011);
Region C: Natural Gas Production, 1994-2009 (New August 2011);
Potential Environmental Justice Areas for Region A (New August 2011);
Potential Environmental Justice Areas for Region B (New August 2011);
Potential Environmental Justice Areas for Region C (New August 2011);
Area of Interest for Visual Resources (New August 2011);
Visually Sensitive Areas Associated with Historic Properties and Cultural Resources (New August 2011);

Parks and Recreational Resources that May be Visually Sensitive (New August 2011);
Natural Areas that May be Visually Sensitive (New August 2011);
Additional Designated Scenic or other Areas that May be Visually Sensitive ;
Level of Continuous Noise Causing Speech Interference (New August 2011);
FHWA Vehicle Classifications (New August 2011);
New York State Department of Transportation Regions (New August 2011)
Transportation (New August 2011);
Land Cover and Agricultural Districts, Representative Region A (New August 2011) ;
Land Cover and Agricultural Districts, Representative Region B (New August 2011);
Land Cover and Agricultural Districts, Representative Region C (New August 2011);
Economic and Fiscal Impacts of Gas Well Drilling Activities in Broome County, NY Over 10 Years;
New York Water Use Classifications;
Primary Drinking Water Standards ;
Secondary Drinking Water Standards ;
Public Water System Definition ;
New York State: Area Employment by Industry, 2009 (New August 2011);
New York State: Wages by Industry, 2009 (New August 2011);
New York State: Labor Force Statistics, 2000 and 2010 (New August 2011);
New York State: Income Statistics, 1999 and 2009 (New August 2011);
New York State: Employment in Travel and Tourism, 2009 (New August 2011);
New York State: Wages in Travel and Tourism, 2009 (New August 2011);
New York State: Agricultural Data, 2007 (New August 2011);
New York: Impact of a \$1 Million Dollar Increase in the Final Demand in the Output of the Oil and Gas Extraction Industry on the Value of the Output of Other Industries (New August 2011);
New York State: Employment in the Oil and Gas Extraction Industry, 2000-2010 (New August 2011);
Most Common Occupations in the U.S. Oil and Gas Extraction Industry, 2008 (New August 2011);
New York State: Wages in the Oil and Gas Industry, 2009 (New August 2011) ;
New York State: Natural Gas Production, 1985-2009 (New August 2011);
Permits Issued, Wells Completed, and Active Wells, NYS Gas Wells, 1994-2009 (New August 2011);
Average Wellhead Price for New York State's Natural Gas, 1994-2009 (New August 2011);
Market Value of New York State's Natural Gas Production, 1994-2009 (New August 2011);
Region A: Area Employment by Industry, 2009 (New August 2011);
Region A: Wages by Industry, 2009 (New August 2011);
Region A: Labor Force Statistics, 2000 and 2010 (New August 2011);
Region A: Income Statistics, 1999 and 2009 (New August 2011);
- Region A: Employment in Travel and Tourism, 2009 (New August 2011);
Region A: Wages in Travel and Tourism, 2009 (New August 2011);
Region A: Agricultural Data, 2007 (New August 2011);
Region A: Number of Active Natural Gas Wells, 1994-2009 (New August 2011);
Natural Gas Production and Active Wells by Town within each County in Region A, 2009 (New August 2011);
Region B: Area Employment, by Industry, 2009 (New August 2011);
Region B: Wages, by Industry, 2009 (New August 2011);
Region B: Labor Force Statistics, 2000 and 2010 ((New August 2011);
Region B: Income Statistics, 1999 and 2009 (New August 2011);
Region B: Travel and Tourism, by Industrial Group, 2009 (New August 2011);
Region B: Wages in Travel and Tourism, 2009 (New August 2011);
Region B: Agricultural Data, 2007 (New August 2011);
Region C: Area Employment by Industry, 2009 (New August 2011);
Region C: Wages, by Industry, 2009 (New August 2011);
Region C: Labor Force Statistics, 2000 and 2010 (New August 2011);
Region C: Income Statistics, 1999 and 2009 (New August 2011);
Region C: Travel and Tourism, by Industrial Group, 2009 (New August 2011);
Region C: Wages in Travel and Tourism, 2009 (New August 2011);

Region C: Agricultural Data, 2007 (New August 2011) ;
 -Number of Active Natural Gas Wells in Region C, 1994-2009 (New August 2011);
 Natural Gas Production and the Number of Active Gas Wells by Town within each County in Region C, 2009 (New August 2011);
 New York State: Historical and Current Population, 1990, 2000, 2010 (New August 2011);
 New York State: Projected Population, 2015 to 2030 (New August 2011);
 Region A: Historical and Current Population, 1990, 2000, 2010 (New August 2011) Table 2.49 - Region A: Population Projections, 2015 to 2030 (New August 2011);
 Region B: Historical and Current Population - 1990, 2000, 2010 (New August 2011);
 Region B: Population Projections, 2015 to 2030 (New August 2011);
 Region C: Historical and Current Population - 1990, 2000, 2010 (New August 2011);
 Region C: Population Projections, 2015 to 2030 (New August 2011);
 New York State: Total Housing Units - 1990, 2000, 2010 (New August 2011);
 New York State: Type of Housing Units, 2009₁ (New August 2011);
 New York State: Number of Sales and Annual Median Sale Price of Single-Family Homes Sold, 2008-2010 (New August 2011);
 New York State: Housing Characteristics, 2010 (New August 2011) ;
 Region A: Total Housing Units - 1990, 2000, 2010 (New August 2011) Table 2.59 - Region A: Total Housing Units by Type of Structure, 2009₁ (New August 2011);
 Region A: Number of Sales and Annual Median Sale Price of Single-Family Homes Sold, 2008-2010 (New August 2011) ;
 Region A: Housing Characteristics, 2010 (New August 2011);
 Region A: Short-Term Accommodations (Hotels/Motels), 2011 (New August 2011);
 Region B: Total Housing Units - 1990, 2000, 2010 (New August 2011);
 Region B: Total Housing Units by Type of Structure 2009₁ (New August 2011);
 Region B: Number of Sales and Annual Median Sale Price of Single-Family Homes Sold, 2008-2010 (New August 2011);
 Region B: Housing Characteristics, 2010 (New August 2011);
 Region B: Short-Term Accommodations (Hotels/Motels) (New August 2011);
 Region C: Total Housing Units - 1990, 2000, 2010 (New August 2011);
 Region C: Total Housing Units by Type of Structure, 2009₁ (New August 2011)
 Region C; Number of sales and Annual Median Sale Price of Single-Family Homes Sold, 2008-2010 (New August 2011);
 Region C: Housing Characteristics, 2010 (New August 2011);
 Region C: Short-Term Accommodations (Hotels/Motels) (New August 2011);
 New York State Revenues Collected for FY Ending March 31, 2010 (New August 2011);
 New York State: Number of Leases and Acreage of State Land Leased for Oil and Natural Gas Development, 2010 (New August 2011);
 2000-2010 Leasing Revenue by Payment Type for New York State (New August 2011);
 Region A: Total Revenue for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Region A: Local Tax Revenue for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Gas Economic Profile for Medina Region 3 (New August 2011);
 Region A: Expenditures for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Region B: Total Revenue for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Region B: Local Tax Revenue for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Gas Economic Profile for Medina Region 4 and State Equalization Rates and Millage Rates for Region B (New August 2011);
 Region B: Expenditures for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Region C: Revenues for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Region C: Local Tax Revenue for FY Ending December 31, 2009 (\$ millions) (New August 2011);
 Gas Economic Profile for Medina Region 2 and State Equalization Rates and Millage Rates for Region C (New August 2011);
 Region C: Expenditures for FY Ending December 31, 2009 (New August 2011);

Racial and Ethnicity Characteristics for New York State (New August 2011);
Region A: Racial and Ethnicity Characteristics (New August 2011);
Region B: Racial and Ethnicity Characteristics (New August 2011);
Region C: Racial and Ethnicity Characteristics (New August 2011);
Number of NRHP-Listed Historic Properties within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
National Historic Landmarks (NHLs) Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
State Parks Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
Select Trails Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
State Nature and Historic Preserves in Counties Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
National and State Wild, Scenic and Recreational Rivers (designated or potential) Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
State Game Refuges and State Wildlife Management Areas Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011) ;
National Natural Landmarks Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011) ;
- Designated and Proposed National and State Scenic Byways, Highways, and Roads Located within the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
Recommended Open Space Conservation Projects Located in the Area Underlain by the Marcellus and Utica Shales in New York (New August 2011);
Effects of Noise on People (New August 2011);
Summary of Noise Levels Identified as Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (New August 2011);
Common Noise Levels (New August 2011);
Guidelines on Extent of Rural Functional Systems (New August 2011);
Descriptions of the Thirteen FHWA Vehicle Classification Categories (New August 2011);
Region A: Highway Mileage by County, 2009 (New August 2011);
Heavy Vehicles as a Percentage of Total Vehicles in Rural Areas in NYSDOT Regions 6 and 9, 2004-2009 (New August 2011);
Region B: Highway Mileage by County, 2009 (New August 2011);
Heavy Vehicles as a Percentage of Total Vehicles in Rural Areas in NYSDOT Region 9, 2004-2009 (New August 2011);
Region C: Highway Mileage by County, 2009 (New August 2011);
Heavy Vehicles as a Percentage of Total Vehicles in Rural Areas in NYSDOT Region 5, 2009 (New August 2011);
Ranking System of Pavement Condition in New York State (New August 2011);
NYSDOT Total Receipts, 2009-2012 (\$ thousands) (New August 2011);

50. The third chapter described how the Department intended to use the 1992 GEIS and the final SGEIS in reviewing applications to conduct high-volume hydraulic fracturing operations in New York State. It described the proposed Environmental Assessment Form (EAF) addendum requirements that would be used in connection with high-volume hydraulic fracturing applications, and also identified those potential activities that would require site-specific SEQRA determinations of significance after the

Final SGEIS is completed.

51. Specifically, Chapter 3 stated that site-specific environmental assessments and SEQRA determinations of significance would be required for the following types of high-volume hydraulic fracturing applications, regardless of the target formation, the number of wells drilled on the pad and whether the wells are vertical or horizontal:

- 1) Any proposed high-volume hydraulic fracturing where the top of the target fracture zone is shallower than 2,000 feet along a part of the proposed length of the wellbore;
- 2) Any proposed high-volume hydraulic fracturing where the top of the target fracture zone at any point along the entire proposed length of the wellbore is less than 1,000 feet below the base of a known fresh water supply;
- 3) Any proposed well pad within the boundaries of a principal aquifer, or outside but within 500 feet of the boundaries of a principal aquifer;
- 4) Any proposed well pad within 150 feet of a perennial or intermittent stream, storm drain, lake or pond;
- 5) A proposed surface water withdrawal that is found not to be consistent with the Department's preferred passby flow methodology as described in Chapter 7; and Revised Draft SGEIS 2011.
- 6) Any proposed well location determined by the New York City Department of Environmental Protection (NYCDEP) to be within 1,000 feet of its subsurface water supply infrastructure.

52. In all of the aforementioned circumstances, a site-specific SEQRA assessment would be required because such application is either beyond the scope of the analyses contained in this Revised draft SGEIS or the Department had determined

that proposed activities in these areas raised environmental issues that necessitated a site-specific review. Chapter 3 also identified the Department's oil and gas well regulations, located at 6 NYCRR Part 550, and it discussed the existence of other regulations and mitigation measures described in this Revised draft SGEIS related to high-volume hydraulic fracturing. For a number of these measures, the Department proposed revisions or additions to its regulations. This chapter discussed how proposed revisions and additions to regulations are part of the environmental review of the Revised draft SGEIS and how the State Administrative Procedure Act process for rulemaking will consider additional impacts of these regulatory actions. These two processes will ensure full review of the proposed environmental controls for high-volume hydraulic fracturing.

53. The Department specifically addressed the following areas of promulgating rules and regulations for the below stated in Chapter 3:

USE OF A GENERIC ENVIRONMENTAL IMPACT STATEMENT;

1992 GEIS and Findings ;

Need for a Supplemental GEIS;

FUTURE SEQRA COMPLIANCE;

Scenarios for Future SEQRA Compliance under the SGEIS

Review Parameters;

SGEIS Applicability - Definition of High-Volume Hydraulic Fracturing;

Project Scope;

Size of Project;

Lead Agency;

EAF Addendum and Additional Informational Requirements;

Hydraulic Fracturing Information;

Water Source Information;

Distances;

Water Well Information;

Fluid Disposal Plan;

Operational Information;

Invasive Species Survey and Map;

Required Affirmations;

Local Planning Documents;

Habitat Fragmentation;

Prohibited Locations;
Projects Requiring Site-Specific SEQRA Determinations of Significance;
REGULATIONS;

54. The fourth chapter supplemented the geology discussion in the 1992 GEIS with additional details about the Marcellus and Utica Shales, seismicity in New York State, naturally occurring radioactive materials (NORM) in the Marcellus Shale and naturally occurring methane in New York State.

55. The natural gas industry in the United States began in 1821 with a well completed by William Aaron Hart in the upper Devonian Dunkirk Shale in Chautauqua County located in the Western District of New York. The “Hart” well supplied businesses and residents in Fredonia, New York with natural gas for 37 years. Hundreds of shallow wells were drilled in the following years into the shale along Lake Erie and then southeastward into western New York. Shale gas fields development spread into Pennsylvania, Ohio, Indiana, and Kentucky. Gas has been produced from the Marcellus shale since 1880 when the first well was completed in the Naples field in Ontario County. Eventually, as other formations were explored, the more productive conventional oil and natural gas fields were developed and shale gas (unconventional natural gas) exploration diminished. The terms “conventional” and “unconventional” are related more to prevailing technology and economics surrounding the development of a given play than to the reservoir rock type from which the oil or natural gas resources are derived. Gas shales (also called “gas-containing shales”) are one of a number of reservoir types that are explored for unconventional natural gas, and this group includes such terms as: deep gas; tight gas; coal-bed methane; geopressurized zones; and Arctic and sub-sea hydrates. The US Energy Research and Development Administration (ERDA) began to evaluate gas resources in the US in the late 1960s.

The Eastern Gas Shales Project was initiated in 1976. The ERDA (later the US Department of Energy) assessed Devonian and Mississippian black shales. The studies concluded that significant natural gas resources were present in these tight formations. The interest in development of shale gas resources increased in the late 20th and early 21st century as the result of an increase in energy demand and technological advances in drilling and well stimulation. The total unconventional natural gas production in the US increased by 65% and the proportion of unconventional gas production to total gas production increased from 28% in 1998 to 46% in 2007. A description of New York State geology and its relationship to oil, gas, and salt production is included in the 1992 GEIS. The geologic discussion provided herein supplemented the information as it pertains to gas potential from unconventional gas resources. Extensive analysis was given to the Utica shale which is located on Plaintiffs' property(s).

56. The Department specifically addressed the following areas of promulgating rules and regulations for the below stated in Chapter 4:

BLACK SHALES;

UTICA SHALE ;

Total Organic Carbon;

Thermal Maturity and Fairways;

Potential for Gas Production;

MARCELLUS FORMATION;

Total Organic Carbon;

Thermal Maturity and Fairways;

Potential for Gas Production;

SEISMICITY IN NEW YORK STATE;

Background;

Seismic Risk Zones;

Seismic Events;

Monitoring Systems in New York;

NATURALLY OCCURRING RADIOACTIVE MATERIALS (NORM) IN MARCELLUS SHALE;

NATURALLY-OCCURRING METHANE IN NEW YORK STATE

Gas Shale Distribution in the Appalachian Basin;

Stratigraphic Column of Southwestern New York;

East West Cross-Section of New York State.;

Extent of Utica Shale in New York State;
Depth to Base of Utica Shale in New York State;
Thickness of High-Organic Utica Shale in New York State;
Utica Shale Fairway in New York State;
Depth and Extent of Marcellus Shale in New York State;
Marcellus Shale Thickness in New York State;
Total Organic Carbon of Marcellus Shale in New York State;
Marcellus Shale Thermal Maturity;
Marcellus Shale Fairway in New York State;
Mapped Geologic Faults in New York State;
New York State Seismic Hazard Map;
Seismic Events in New York State (1970 to 2009);
Modified Mercalli Scale Table 4.2 - Summary of Seismic Events in New York State;

57. The fifth chapter dealt with natural gas development activities and high-volume hydraulic fracturing. This Chapter comprehensively described the activities associated with high-volume hydraulic fracturing and multi-well pad drilling, including the composition of hydraulic fracturing additives and flowback water characteristics. It is based on the most recent up-to-date description of proposed activities provided by industry and informed by high-volume hydraulic fracturing operations currently ongoing in Pennsylvania and elsewhere. In this Chapter, the average disturbance associated with a multi-well pad, access road and proportionate infrastructure during the drilling and fracturing stage was estimated at 7.4 acres, compared to the average disturbance associated with a well pad for a single vertical well during the drilling and fracturing stage, which is estimated at 4.8 acres. As a result of required partial reclamation, the average well pad would generally be reduced to averages of about 5.5 acres and 4.5 acres, respectively, during the production phase.

58. This Chapter also described the process for constructing access roads, and observed that because most shale gas development would consist of several wells on a multi-well pad, more than one well would be serviced by a single access road instead of one well per access road as was typically the case when the 1992 GEIS was prepared.

Therefore, in areas developed by horizontal drilling using multi-well pads, it is expected that fewer access roads as a function of the number of wells would be constructed. Industry estimates that 90% of the wells used to develop the Marcellus Shale would be horizontal wells located on multi-well pads. This method provides the most flexibility to avoid environmentally sensitive locations within the acreage to be developed.

59. With respect to overall land disturbance from a horizontal drilling, there would be a larger surface area used for an individual multi-well pad. This would be more than offset, however, by the fewer total number of well pads required within a given area and the need for only a single access road and gas gathering system to service multiple wells on a single pad.

60. Overall, there clearly is a smaller total area of land disturbance associated with horizontal wells for shale gas development than that for vertical wells. For example, a spacing of 40 acres per well for vertical shale gas wells would result in, on average, 70 – 80 acres of disturbance for the well pads, access roads and utility corridors (4.8 acres per well) to develop an area of 640 acres. A single well pad with 6 to 8 horizontal shale gas wells could access all 640 acres with only 7 to 8 acres of total land disturbance.

61. Chapter 5 further described the constituents of drilling mud and the containment of drilling cuttings, through either a lined on-site reserve pit or in a closed-loop tank system. This Chapter also calculated the projected volume of cuttings and the potential for such cuttings to contain NORM. The Chapter also discusses the hydraulic fracturing process, the composition of fracturing fluid, on-site storage and handling and transport of fracturing additives. The high-volume hydraulic fracturing process involved

the controlled use of water and chemical additives, pumped under pressure into the cased and cemented wellbore.

62. To protect fresh water zones and isolate the target hydrocarbon-bearing zone, hydraulic fracturing does not occur until after the well is cased and cemented, and typically after the drilling rig and its associated equipment are removed from the well pad.

63. Chapter 5 then explained that the Department would generally require at least three strings of cemented casing in the well during fracturing operations. The outer string (i.e., surface casing) would extend below fresh ground water and would have been cemented to the surface before the well was drilled deeper. The intermediate casing string, also called protective string, is installed between the surface and production strings. The innermost casing string (i.e., production casing) typically extends from the ground surface to the toe of the horizontal well. The fluid used for high-volume hydraulic fracturing is typically comprised of more than 98% fresh water and sand, with chemical additives comprising 2% or less of the fluid.

64. The Department had collected compositional information on many of the additives proposed for use in fracturing shale formations in New York directly from chemical suppliers and service companies and those additives are identified and discussed in detail in Chapter 5. It is estimated that 2.4 million to 7.8 million gallons of water may be used for a multi-stage hydraulic fracturing procedure in a typical 4,000-foot lateral wellbore. Water may be delivered by truck or pipeline directly from the source to the well pad, or may be delivered by trucks or pipeline from centralized water storage or staging facilities consisting of tanks or engineered impoundments.

65. 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 (typically sand) to flow up through the wellbore to the surface. Both the process and the returned water are commonly referred to as “flowback.”

66. Chapter 5 discussed the volume, characteristics, recycling and disposal of flowback water. The Revised dSGEIS estimated flowback water volume to range from 216,000 gallons to 2.7 million gallons per well, based on a pumped fluid estimate of 2.4 million to 7.8 million gallons.

67. Finally, Chapter 5 provided estimates of potential gas production from high-volume hydraulic fracturing operations and also discussed waste disposal associated with high-volume hydraulic fracturing operations, including disposal of cuttings, flowback and production brine.

68. As noted in the 1992 GEIS, New York has a long history of natural gas production. As previously stated herein, the first gas well was drilled in 1821 in Fredonia, and the 40 Bcf of gas produced in 1938 remained the production peak until 2004 when 46.90 Bcf were produced. Annual production exceeded 50 Bcf from 2005 through 2008, dropping to 44.86 Bcf in 2009 and 35.67 Bcf in 2010. This Chapter comprehensively discussed well drilling, completion and production operations, including potential environmental impacts and mitigation measures. The history of hydrocarbon development in New York is also covered. . New York counties that were actively producing gas wells reported in 2010 were: Allegany, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Erie, Genesee, Livingston, Madison, Niagara, Ontario, Oswego, Schuyler, Seneca, Steuben, Tioga, Wayne, Wyoming and Yates.

69. As stated, hydraulic fracturing is a well stimulation technique which consists of pumping a fluid and a proppant such as sand down the wellbore under high pressure to create fractures in the hydrocarbon-bearing rock. No blast or explosion is created by the hydraulic fracturing process. The proppant holds the fractures open, allowing hydrocarbons to flow into the wellbore after injected fluids are recovered. Hydraulic fracturing technology was first developed in the late 1940s and, accordingly, it was addressed in the 1992 GEIS. It is estimated that as many as 90% of wells drilled in New York are hydraulically fractured.

70. The hydraulic fracturing technological milestones are the following:

Early 1900s Natural gas extracted from shale wells. Vertical wells fractured with foam.
1983 First gas well drilled in Barnett Shale in Texas
1980-1990s Cross-linked gel fracturing fluids developed and used in vertical wells
1991 First horizontal well drilled in Barnett Shale
1991 Orientation of induced fractures identified
1996 Slickwater fracturing fluids introduced
1996 Microseismic post-fracturing mapping developed
1998 Slickwater refracturing of originally gel-fractured wells
2002 Multi-stage slickwater fracturing of horizontal wells
2003 First hydraulic fracturing of Marcellus Shale
2005 Increased emphasis on improving the recovery factor
2007 Use of multi-well pads and cluster drilling

71. The Department specifically addresses the following areas of promulgating rules and regulations for the below stated in Chapter 5:

LAND DISTURBANCE;

Access Roads;

Well Pads;

Utility Corridors;

Well Pad Density;

Historic Well Density;

Anticipated Well Pad Density;

HORIZONTAL DRILLING;

Drilling Rigs;

Multi-Well Pad Development;

Drilling Mud;

Cuttings;

Cuttings Volume;
NORM in Marcellus Cuttings;
Management of Drilling Fluids and Cuttings;
Reserve Pits on Multi-Well Pads;
Closed-Loop Tank Systems;
HYDRAULIC FRACTURING;
FRACTURING FLUID;
Properties of Fracturing Fluids;
Classes of Additives;
Composition of Fracturing Fluids;
Chemical Categories and Health Information;
TRANSPORT OF HYDRAULIC FRACTURING ADDITIVES
ON - SITE STORAGE AND HANDLING OF HYDRAULIC FRACTURING ADDITIVES;
Summary of Additive Container Types;
SOURCE WATER FOR HIGH - VOLUME HYDRAULIC FRACTURING;
Delivery of Source Water to the Well Pad;
Use of Centralized Impoundments for Fresh Water Storage;
HYDRAULIC FRACTURING DESIGN;
Fracture Development; .
Methods for Limiting Fracture Growth;
Hydraulic Fracturing Design – Summary;
HYDRAULIC FRACTURING PROCEDURE;
RE - FRACTURING;
FLUID RETURN;
Flowback Water Recovery;
Flowback Water Handling at the Wellsite;
Flowback Water Characteristics;
Temporal Trends in Flowback Water Composition;
NORM in Flowback Water;
FLOWBACK WATER TREATMENT, RECYCLING AND REUSE;
Physical and Chemical Separation;
Dilution;
Reuse;
Other On-Site Treatment Technologies;. .
Membranes / Reverse Osmosis;
Thermal Distillation;
Ion Exchange;
Electrodialysis/Electrodialysis Reversal;
Ozone/Ultrasonic/Ultraviolet ;
Crystallization/Zero Liquid Discharge;
Comparison of Potential On-Site Treatment Technologies;
WASTE DISPOSAL;
Cuttings from Mud Drilling;
Reserve Pit Liner from Mud Drilling;
Flowback Water;
Injection Wells ;
Municipal Sewage Treatment Facilities;
Out-of-State Treatment Plants;
Road Spreading;
Private In-State Industrial Treatment Plants;
Enhanced Oil Recovery;
Solid Residuals from Flowback Water Treatment;
WELL CLEANUP AND TESTING;

SUMMARY OF OPERATIONS PRIOR TO PRODUCTION;

NATURAL GAS PRODUCTION;

Partial Site Reclamation;
Gas Composition;
Hydrocarbons;
Hydrogen Sulfide;
Production Rate;
Well Pad Production Equipment;
Brine Storage;
Brine Disposal;
NORM in Marcellus Production Brine;
Gas Gathering and Compression;

WELL PLUGGING;

Well Pad Schematic;
Possible well spacing unit configurations and wellbore paths;
Sample Fracturing Fluid Composition (12 Additives), by Weight, from Fayetteville Shale;
Sample Fracturing Fluid Composition (9 Additives), by Weight, from Marcellus Shale (New July 2011);
Sample Fracturing Fluid Composition (6 Additives), by Weight, from Marcellus Shale (New July 2011);
Example Fracturing Fluid Composition Including Recycled Flowback Water (New July 2011);
One configuration of potential on-site treatment technologies;
Simplified Illustration of Gas Production Process ;
Ten square mile area (i.e., 6,400 acres), completely drilled with horizontal wells in multi-well units or vertical wells in single-well units (Updated July 2011);
2009 Marcellus Radiological Data ;
Gamma Ray Spectroscopy;
Fracturing Additive Products – Complete Composition Disclosure Made to the Department (Updated July 2011);
Fracturing Additive Products – Partial Composition Disclosure to the Department (Updated July 2011);
Types and Purposes of Additives Proposed for Use in New York State (Updated July 2011);
Chemical Constituents in Additives,, (Updated July 2011) ;
Categories based on chemical structure of potential fracturing fluid constituents. (Updated July 2011);
Parameters present in a limited set of flowback analytical results (Updated July 2011);
Typical concentrations of flowback constituents based on limited samples from PA and WV, and regulated in NY, (Revised July 2011);
Typical concentrations of flowback constituents based on limited samples from PA and WV, not regulated in NY(Revised July 2011);
Conventional Analytes In MSC Study (New July 2011);
Total and Dissolved Metals Analyzed In MSC Study (New July 2011);
Volatile Organic Compounds Analyzed in MSC Study (New July 2011);
Semi-Volatile Organics Analyzed in MSC Study (New July 2011) ;
Organochlorine Pesticides Analyzed in MSC Study (New July 2011);
PCBs Analyzed in MSC Study (New July 2011);
Organophosphorus Pesticides Analyzed in MSC Study (New July 2011);
Alcohols Analyzed in MSC Study (New July 2011);
Glycols Analyzed in MSC Study (New July 2011);
Acids Analyzed in MSC Study (New July 2011);
Parameter Classes Analyzed for in the MSC Study (New July 2011);
Parameter Classes Detected in Flowback Analyticals in MSC Study (New July 2011);
Concentrations of NORM constituents based on limited samples from PA and WV (Revised July 2011);
Maximum allowable water quality requirements for fracturing fluids, based on input from one expert panel on Barnett Shale (Revised July 2011);
Treatment capabilities of EDR and RO Systems;
Summary of Characteristics of On-Site Flowback Water Treatment Technologies (Updated July 2011);
Out-of-state treatment plants proposed for disposition of NY flowback water;

Primary Pre-Production Well Pad Operations (Revised July 2011);
Marcellus Gas Composition from Bradford County, PA;
Access Road and Erosion/Sedimentation Controls, Salo 1, Barton, Tioga County NY;
Access Road, Nornew Smyrna Hillbillies 2H, Smyrna, Madison County NY;
In-Service Access Road to Horizontal Marcellus well in Bradford County PA;
Access Road and Sedimentation Controls, Moss 1, Corning, Steuben County NY;
- Chesapeake Energy Marcellus Well Drilling, Bradford County, PA;
Hydraulic fracturing operation, Horizontal Marcellus Well, Upshur County, WV;
Hydraulic Fracturing Operation, Horizontal Marcellus Well, Bradford County, PA;
Locations of Over 44,000 Natural Gas Wells Targeting the Medina Formation, Chautauqua County NY;
Locations of 48 Natural Gas Wells Targeting the Medina Formation, Chautauqua County NY ;
Locations of 28 Wells in the Town of Poland, Chautauqua County NY ;
Locations of 77 Wells in the Town of Sheridan, Chautauqua County NY;
Double Drilling Rig, Union Drilling Rig 54, Olsen 1B, Town of Fenton, Broome County NY;
Double Drilling Rig, Union Drilling Rig 48, Salo 1, Town of Barton, Tioga County NY;
Triple Drilling Rig, Precision Drilling Rig 26, Ruger 1, Horseheads, Chemung County NY;
Top Drive Single Drilling Rig, Barber and DeLine Rig, Sheckells 1, Town of Cherry Valley, Otsego County NY;
Drilling rig mud system (blue tanks);
Sand used as proppant in hydraulic fracturing operation in Bradford County, PA;
Transport trucks with totes;
Fortuna SRBC-Approved Chemung River Water Withdrawal Facility, Towanda PA;
Fresh Water Supply Pond;
Water Pipeline from Fortuna Centralized Freshwater Impoundments, Troy PA;
Construction of Freshwater Impoundment, Upshur County WV;
Personnel monitoring a hydraulic fracturing procedure. Source: Fortuna Energy;
Three Fortuna Energy wells being prepared for hydraulic fracturing, with 10,000 psi well head and goat head attached to lines. Troy PA. Source: New York State Department of Environmental Conservation 20095-93;
Hydraulic Fracturing Operation Equipment at a Fortuna Energy Multi-Well Site, Troy PA ;
Fortuna Energy Multi-Well Site in Troy PA After Removal of Most Hydraulic Fracturing Equipment ;
Wellhead and Fracturing Equipment;
Pipeline Compressor in New York. Source: Fortuna Energy;

72. Chapter 6 dealt with potential environmental impacts. This chapter identified and evaluated the potential significant adverse impacts associated with high-volume hydraulic fracturing operations and, like the other chapters, the Department recommended it should be read as a supplement to the 1992 GEIS.

73. The Department studied potential adverse impacts on water resources with regard to water withdrawals for hydraulic fracturing; stormwater runoff; surface spills, leaks and pit or surface impoundment failures; groundwater impacts associated with well drilling and construction; waste disposal and New York City's subsurface water supply infrastructure. During the public scoping process, additional concerns were

raised relating to the potential degradation of New York City's surface drinking water supply and potential groundwater contamination from the hydraulic fracturing procedure itself. Water for hydraulic fracturing may be obtained by withdrawing it from surface water bodies away from the well site or through new or existing water-supply wells drilled into aquifers.

74. Chapter 6 concluded that, without proper controls on the rate, timing and location of such water withdrawals, the cumulative impacts of such withdrawals could cause modifications to groundwater levels, surface water levels, and stream flow that could theoretically result in adverse impacts, including but not limited to impacts to the aquatic ecosystem, downstream river channel and riparian resources, wetlands, and aquifer supplies.

75. Using an industry estimate of a yearly peak activity in New York of 2,462 wells, the Revised dSGEIS estimated that high-volume hydraulic fracturing would result in a calculated peak *annual* fresh water usage of 9 billion gallons. Total *daily* fresh water withdrawal in New York State has been estimated at about 10.3 billion gallons. This equates to an annual total of about 3.8 trillion gallons. Based on this calculation, at peak activity, high-volume hydraulic fracturing would result in an increased demand for fresh water in New York State of 0.24%.

76. Thus, water usage for high volume hydraulic fracturing represents a very small percentage of water usage throughout the state. Nevertheless, as noted, the cumulative impact of water withdrawals, if such withdrawals were temporally proximate and from the same water resource, could potentially have an impact. The mitigation measures to ensure that such impacts are prevented are described in Chapter 7,

summarized below.

77. Chapter 6 also described the potential impacts on water resources from stormwater flow associated with the construction and operation of high-volume hydraulic fracturing well pads. All phases of natural gas well development, from initial land clearing for access roads, equipment staging areas and well pads, to drilling and fracturing operations, production and final reclamation, have the potential to cause water resource impacts during rain and snow melt events if stormwater is not properly managed.

78. Proposed mitigation measures to prevent significant adverse impacts from stormwater runoff are described in Chapter 7. The Revised dSGEIS concluded that spills or releases in connection with high-volume hydraulic fracturing could have adverse impacts on water resources. The Revised dSGEIS identified a significant number of contaminants contained in fracturing additives, or otherwise associated with high-volume hydraulic fracturing operations.

79. Spills or releases can occur 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 or infiltrate the ground, reaching subsurface soils and aquifers. Proposed mitigation measures to prevent significant adverse impacts from spills and releases are described in Chapter 7.

80. Chapter 6 also assessed the potential significant adverse impacts on ground water resources from well drilling and construction associated with high-volume hydraulic fracturing. Those potential impacts include impacts from turbidity, fluids

pumped into or flowing from rock formations penetrated by the well, and contamination from natural gas present in the rock formations penetrated by the well. The Revised dSGEIS concluded that these potential impacts are not unique to horizontal wells or high-volume hydraulic fracturing and are described and fully assessed in the 1992 GEIS. Nevertheless, because of the concentrated nature of the activity on multi-well pads and the larger fluid volumes and pressures associated with high-volume hydraulic fracturing, enhanced procedures and mitigation measures were proposed and described in Chapter 7.

81. A supporting study for the Revised dSGEIS concluded that it is highly unlikely that groundwater contamination would occur by fluids escaping from the wellbore for hydraulic fracturing. The 2009 dSGEIS further observed that regulatory officials from 15 states testified that groundwater contamination as a result of the hydraulic fracturing process in the tight formation itself has not occurred. The Revised dSGEIS explained that the potential migration of natural gas to a water well was fully addressed in the 1992 GEIS.

82. Further, well construction associated with high-volume hydraulic fracturing presented no new significant adverse impacts with regard to potential gas migration. Gas migration is a result of poor well construction (i.e., casing and cement problems). As with all gas drilling, well construction practices mandated in New York are designed to prevent gas migration. Those practices would also minimize the risk of migration of other formation fluids such as oil or brine. The Revised dSGEIS acknowledged that migration of naturally-occurring methane from wetlands, landfills and shallow bedrock could also contaminate water supplies independently or in the absence of any nearby oil

and gas activities. The Revised dSGEIS explained how the natural occurrence of shallow methane in New York State could affect water wells unrelated to natural gas development.

83. Chapters 5 and 6 contained analyses that demonstrated that no significant adverse impact to water resources was likely to occur due to underground vertical migration of fracturing fluids through the shale formations. The developable shale formations are vertically separated from potential freshwater aquifers by at least 1,000 feet of sandstones and shales of moderate to low permeability. In fact, most of the bedrock formations above the Marcellus Shale are other shales.

84. The Department determined that shales must be hydraulically fractured to produce fluids is evidence that these types of rock formations do not readily transmit fluids. The high salinity of native water in the Marcellus and other Devonian shales is evidence that fluid has been trapped in the pore spaces for hundreds of millions of years, implying that there is no mechanism for discharge of fluids to other formations.

85. Further, hydraulic fracturing is engineered to target the prospective hydrocarbon-producing zone. The induced fractures create a pathway to the intended wellbore, but do not create a discharge mechanism or pathway beyond the fractured zone where none existed before. The pressure differential that pushes fracturing fluid into the formation is diminished once the rock has fractured, and is reversed toward the wellbore during the flowback and production phases.

86. Accordingly, the Department stated that there is no likelihood of significant adverse impacts from the underground migration of fracturing fluids. No significant adverse impacts are identified with regard to the disposal of liquid wastes. Drilling and

fracturing fluids, mud-drilled cuttings, pit liners, flowback water and produced brine, although classified as non-hazardous industrial waste, must be hauled under a New York State Part 364 waste transporter permit issued by the Department. Furthermore, as discussed in Chapter 7, any environmental risk posed by the improper discharge of liquid wastes would be addressed through the institution of a waste tracking procedure similar to that which is required for medical waste, even though the hazards are not equivalent.

87. Another concern addressed by the Department related to potential spills as a result of trucking accidents. Information about traffic management related to high-volume hydraulic fracturing was discussed in Chapter 7. The disposal of flowback water could cause a significant adverse impact if the wastewater was not properly treated prior to disposal. Residual fracturing chemicals and naturally-occurring constituents from the rock formation could be present in flowback water and could result in treatment, sludge disposal, and receiving-water impacts. Salts and dissolved solids may not be sufficiently treated by municipal biological treatment and/or other treatment technologies which are not designed to remove pollutants of this nature. However, the Department addressed in detail all potential hazards would be minimized or averted as stated below.

88. Mitigation measures have been identified that would eliminate any potential significant adverse impact from flowback water or treatment of other liquid wastes associated with high-volume hydraulic fracturing. The Department was not proposing to alter its 1992 GEIS Finding that proposed disposal wells required individual site-specific review under SEQRA. Therefore, the potential for significant adverse environmental

impacts from any proposal to inject flowback water from high-volume hydraulic fracturing into a disposal well would be reviewed on a site-specific basis with the Revised Draft SGEIS 2011. Consideration to local geology (including faults and seismicity), hydrogeology, nearby wellbores or other potential conduits for fluid migration and other pertinent site-specific factors would be addressed on a case by case basis.

89. The 1992 GEIS summarized the potential impacts of flood damage relative to mud or reserve pits, brine and oil tanks, other fluid tanks, brush debris, erosion and topsoil, bulk supplies (including additives) and accidents. Those potential impacts are equally applicable to high volume hydraulic fracturing operations. Severe flooding is described as one of the few ways that bulk supplies such as additives “might accidentally enter the environment in large quantities.”

90. Mitigation measures to ensure that significant adverse impacts from floods do not occur in connection with high-volume hydraulic fracturing operations are identified and recommended in Chapter 7.

91. Gamma ray logs from deep wells drilled in New York over the past several decades show the Marcellus Shale to be higher in radioactivity than other bedrock formations including other potential reservoirs that could be developed by high-volume hydraulic fracturing. However, based on the analytical results from field-screening and gamma ray spectroscopy performed on samples of Marcellus Shale NORM levels in cuttings are not significant because the levels are similar to those naturally encountered in the surrounding environment.

92. As explained in Chapter 5, the total volume of drill cuttings produced from drilling a horizontal well may be about 40% greater than that for a conventional, vertical well. For multi-well pads, cuttings volume would be multiplied by the number of wells on the pad. The potential water resources impact associated with the greater volume of drill cuttings from multiple horizontal well drilling operations would arise from the retention of cuttings during drilling, necessitating a larger reserve pit that may be present for a longer period of time, unless the cuttings are directed into tanks as part of a closed loop tank system.

93. The final analysis in Chapter 6 dealt with the impacts on ecosystems and wildlife. The Revised dSGEIS had been revised to expand the analysis of the potential significant adverse impacts on ecosystems and wildlife from high-volume hydraulic fracturing operations. Four areas of concern related to high-volume hydraulic fracturing are: (1) fragmentation of habitat; (2) potential transfer of invasive species; (3) impacts to endangered and threatened species; and (4) use of state-owned lands.

94. The Revised dSGEIS concluded that high-volume hydraulic fracturing operations would have a potential impact on the environment because such operations could have the potential to draw development into New York, which would result in unavoidable impacts to habitats (fragmentation, loss of connectivity, degradation, etc.), species distributions and populations, and overall natural resource biodiversity. Habitat loss, conversion, and fragmentation (both short term and long-term) would result from land grading and clearing, and the construction of well pads, roads, pipelines, and other infrastructure associated with gas drilling. Mitigation of such impacts is identified in Chapter 7. However, the herein stated is not any different than building homes in a

typical neighborhood located within the Western District of New York.

95. The number of vehicle trips associated with high-volume hydraulic fracturing, particularly at multi-well sites, has been identified as an activity which presents the opportunity to transfer invasive terrestrial species. Surface water withdrawals also have the potential to transfer invasive aquatic species. The introduction of terrestrial and aquatic invasive species would have an adverse impact on the environment and must be mitigated to every possibility. The Department has addressed these potential issues herein.

96. State-owned lands play a unique role in New York's landscape because they are managed under public ownership to allow for sustainable use of natural resources, provide recreational opportunities for all New Yorkers, and provide important wildlife habitat and open space.

97. Given the level of development expected for multi-pad horizontal drilling, the Revised dSGEIS anticipated that there would be additional pressure for surface disturbance on State lands. Surface disturbance associated with gas extraction could have an impact on habitats on State lands, and recreational use of those lands, especially large contiguous forest patches that are valuable because they sustain wide-ranging forest species, and provide more habitat for forest interior species. These issues have been adequately addressed in the Revised dSGEIS.

98. The area underlain by the Marcellus Shale includes both terrestrial and aquatic habitat for 18 animal species listed as endangered or threatened in New York State that are protected under the State Endangered Species Law (ECL 11-0535) and associated regulations (6 NYCRR Part 182). Endangered and threatened wildlife may

be adversely impacted through project actions such as clearing, grading and road building that occur within the habitats that they occupy. These issues have been adequately addressed in the Revised dSGEIS.

99. Some species are unable to avoid direct impact due to their inherent poor mobility (e.g., Blanding's turtle, club shell mussel). Certain actions, such as clearing of vegetation or alteration of stream beds, can also result in the loss of nesting and spawning areas. Mitigation for potentially significant adverse impacts from potential transfer of invasive species or from use of State lands, and mitigation for potential impacts to endangered and threatened species is identified and addressed in the Revised dSGEIS. There are no known or negative adverse impacts on Plaintiffs' property(s) as there are no known factors to indicate concerns stated herein. Chapter 7 dealt with any potential issue that theoretically could be addressed on said property(s).

100. The Department specifically addressed the following areas of promulgating rules and regulations for the below stated in Chapter 6:

WATER RESOURCES;

Water Withdrawals;
Reduced Stream Flow;
Degradation of a Stream's Best Use;
Impacts to Aquatic Habitat;
Impacts to Aquatic Ecosystems;
Impacts to Wetlands;
Aquifer Depletion;
Cumulative Water Withdrawal Impacts;
Stormwater Runoff ;
Surface Spills and Releases at the Well Pad;
Drilling ;
Hydraulic Fracturing Additives;
Flowback Water and Production Brine;
Potential Impacts to Primary and Principal Aquifers ;
Groundwater Impacts Associated With Well Drilling and Construction;
Turbidity;
Fluids Pumped Into the Well;
Natural Gas Migration;
Unfiltered Surface Drinking Water Supplies: NYC and Syracuse;

Pollutants of Critical Concern in Unfiltered Drinking Water Supplies;
Regulatory and Programmatic Framework for Filtration Avoidance;
Adverse Impacts to Unfiltered Drinking Waters from High-Volume Hydraulic Fracturing;
Conclusion;
Hydraulic Fracturing Procedure ;
Wellbore Failure;
Subsurface Pathways;
Waste Transport;
Fluid Discharges;
POTWs;

Private Off-site Wastewater Treatment and/or Reuse Facilities;
Private On-site Wastewater Treatment and/or Reuse Facilities;
Disposal Wells;
Other Means of Wastewater Disposal;
Solids Disposal;
NORM Considerations - Cuttings
Cuttings Volume;
Cuttings and Liner Associated With Mud-Drilling;

FLOODPLAINS;

FRESHWATER WETLANDS;

ECOSYSTEMS AND WILDLIFE;

Impacts of Fragmentation to Terrestrial Habitats and Wildlife;
Impacts of Grassland Fragmentation;
Impacts of Forest Fragmentation;
Invasive Species;
Terrestrial;
Aquatic;
Impacts to Endangered and Threatened Species;
Impacts to State-Owned Lands;

AIR QUALITY;

Regulatory Overview;
Emission Analysis NO_x - Internal Combustion Engine Emissions;
Natural Gas Production Facilities NESHAP 40 CFR Part 63, Subpart HH (Glycol Dehydrators);
Flaring Versus Venting of Wellsite Air Emissions;
Number of Wells Per Pad Site;
Natural Gas Condensate Tanks;
Emissions Tables;
Offsite Gas Gathering Station Engine;
Department Determinations on the Air Permitting Process Relative to Marcellus Shale High-Volume Hydraulic Fracturing Development Activities;
Air Quality Impact Assessment;
Introduction;
Sources of Air Emissions and Operational Scenarios;
Modeling Procedures;
Results of the Modeling Analysis;
Supplemental Modeling Assessment for Short Term PM_{2.5}, SO₂ and NO₂ Impacts and Mitigation;
Measures Necessary to Meet NAAQS;
The Practicality of Mitigation Measures on the Completion Equipment and Drilling Engines;
Conclusions from the Modeling Analysis;
Regional Emissions of O₃ Precursors and Their Effects on Attainment Status in the SIP;
Air Quality Monitoring Requirements for Marcellus Shale Activities;
Permitting Approach to the Well Pad and Compressor Station Operations;

GREENHOUSE GAS EMISSIONS;

Greenhouse Gases;
Emissions from Oil and Gas Operations;
Vented Emissions;
Combustion Emissions;
Fugitive Emissions;
Emissions Source Characterization;
Emission Rates;
Drilling Rig Mobilization, Site Preparation and Demobilization;
Completion Rig Mobilization and Demobilization;
Well Drilling;
Well Completion;
Well Production;
Summary of GHG Emissions;
NATURALLY OCCURRING RADIOACTIVE MATERIALS IN THE MARCELLUS SHALE;
SOCIOECONOMIC IMPACTS;
Economy, Employment, and Income;
New York State;
Representative Regions;
Population;
New York State;
Representative Regions;
Housing;
New York State;
Representative Regions;
Cyclical Nature of the Natural Gas Industry;
Property Values;
Government Revenue and Expenditures;
New York State;
Representative Regions;
Environmental Justice;
VISUAL IMPACTS;
Changes since Publication of the 1992 GEIS that Affect the Assessment of Visual Impacts;
Equipment and Drilling Techniques;
Changes in Well Pad Size and the Number of Water Storage Sites;
Duration and Nature of Drilling and Hydraulic-Fracturing Activities;
New Landscape Features Associated with the Different Phases of Horizontal Drilling and Hydraulic Fracturing;
New Landscape Features Associated with the Construction of Well Pads;
New Landscape Features Associated with Drilling Activities at Well Pads;
New Landscape Features Associated with Hydraulic Fracturing Activities at Well Pads;
New Landscape Features Associated with Production at Viable Well Sites;
New Landscape Features Associated with the Reclamation of Well Sites;
Visual Impacts Associated with the Different Phases of Horizontal Drilling and Hydraulic Fracturing;
Visual Impacts Associated with Construction of Well Pads;
Visual Impacts Associated with Drilling Activities on Well Pads;
Visual Impacts Associated with Hydraulic Fracturing Activities at Well Sites;
Visual Impacts Associated with Production at Well Sites;
Visual Impacts Associated with the Reclamation of Well Sites;
Visual Impacts of Off-site Activities Associated with Horizontal Drilling and Hydraulic Fracturing;
Previous Evaluations of Visual Impacts from Horizontal Drilling and Hydraulic Fracturing;
Assessment of Visual Impacts using NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION Policy and Guidance;
Summary of Visual Impacts;

NOISE;

Access Road Construction;
Well Site Preparation;
High-Volume Hydraulic Fracturing – Drilling;
High-Volume Hydraulic Fracturing – Fracturing;
Transportation;
Gas Well Production;

TRANSPORTATION IMPACTS;

Estimated Truck Traffic;
Total Number of Trucks per Well;
Temporal Distribution of Truck Traffic per Well;
Temporal Distribution of Truck Traffic for Multi-Well Pads;
Increased Traffic on Roadways;
Damage to Local Roads, Bridges, and other Infrastructure;
Damage to State Roads, Bridges, and other Infrastructure;
Operational and Safety Impacts on Road Systems;
Transportation of Hazardous Materials;
Impacts on Rail and Air Travel;

COMMUNITY CHARACTER IMPACTS;

SEISMICITY;

Hydraulic Fracturing-Induced Seismicity;
Background;
Recent Investigations and Studies;
Correlations between New York and Texas;
Affects of Seismicity on Wellbore Integrity;
Summary of Potential Seismicity Impacts ;
Water Withdrawals in the United States;
Fresh Water Use in NY (millions of gallons per day) with Projected Peak Water Use for High-Volume Hydraulic Fracturing (New July 2011);
Daily Water Withdrawals, Exports, and Consumptive Uses in the Delaware River Basin;
NYSDOH Regulated Groundwater Supplies within Mapped Primary and Principal Aquifers in NY, Where the Marcellus Shale is Greater than 2,000 Feet below Ground Surface;
Average Spatial Disturbance for Marcellus Shale Well Pads in Forested Context (New July 2011);
Interior Forest Habitat Before & After Development of a Marcellus Gas Well Pad, Elk County PA (New July 2011);
Total Forest Areas Converted (New July 2011);
New York's Forest Matrix Blocks and State Connectivity (New July 2011);
Areas of Concern for Endangered and Threatened Animal Species within the Area Underlain by the Marcellus Shale in New York, March 31, 2011 (New July 2011);
Location of Well Pad Sources of Air Pollution Used in Modeling;
Barnett Shale Natural Gas Production Trend, 1998-2007;
Projected Direct Employment in New York State Resulting from Each Development Scenario (New August 2011);
Projected Total Employment in New York State Resulting from Each Development Scenario (New August 2011);
Projected Direct Employment in Region A Resulting from Each Development Scenario (New August 2011);
Projected Direct Employment in Region B Resulting from Each Development Scenario (New August 2011);
Projected Direct Employment in Region C Resulting from Each Development Scenario (New August 2011);
Projected Total Employment in Region A Under Each Development Scenario (New August 2011);
Projected Total Employment in Region B Under Each Development Scenario (New August 2011);
Projected Total Employment in Region C Under Each Development Scenario (New August 2011);
A-Weighted Noise Emissions: Cruise Throttle, Average Pavement (New August 2011);
Estimated Round-Trip Daily Heavy and Light Truck Traffic, by Well Type - Single Well (New August 2011);
Estimated Daily Round-Trips of Heavy and Light Truck Traffic - Multi Horizontal Wells (New August 2011);
Estimated Round-Trip Daily Heavy and Light Truck Traffic - Multi Vertical Wells (New August 2011);

TABLES;

Comparison of additives used or proposed for use in NY, parameters detected in analytical results of flowback from the Marcellus operations in PA and WV and parameters regulated via primary and secondary drinking water standards, SPDES or TOGS111 (Revised August 2011);
Grassland Bird Population Trends at Three Scales from 1966 to 2005. (New July 2011);
Terrestrial Invasive Plant Species In New York State (Interim List);
Aquatic, Wetland & Littoral Invasive Plant Species in New York State (Interim List);
Endangered & Threatened Animal Species within the Area Underlain by the Marcellus Shale (New July 2011);
EPA AP-42 Emissions Factors Tables;
Estimated Wellsite Emissions (Dry Gas) - Flowback Gas Flaring (Tpy)(Updated July 2011);
Estimated Wellsite Emissions (Dry Gas) - Flowback Gas Venting (Tpy)(Updated July 2011);
Estimated Wellsite Emissions (Wet Gas) - Flowback Gas Flaring (Tpy) (Updated July 2011);
Estimated Wellsite Emissions (Wet Gas) - Flowback Gas Venting (Tpy) (Updated July 2011);
Estimated Off-Site Compressor Station Emissions (Tpy);
Sources and Pollutants Modeled for Short-Term Simultaneous Operations;
National Weather Service Data Sites Used in the Modeling;
National Ambient Air Quality Standards (NAAQS), PSD Increments & Significant Impact Levels (SILs) for Criteria Pollutants ($\mu\text{g}/\text{m}^3$;
Maximum Background Concentration from Department Monitor Sites;
Maximum Impacts of Criteria Pollutants for Each Meteorological Data Set;
Maximum Project Impacts of Criteria Pollutants and Comparison to SILs, PSD Increments and Ambient Standards ;
Maximum Impacts of Non-Criteria Pollutants and Comparisons to SGC/AGC and New York State AAQS;
Modeling Results for Short Term PM₁₀, PM_{2.5} and NO₂ (New July 2011);
Engine Tiers and Use in New York with Recommended Mitigation Controls Based on the Modeling Analysis (New July 2011);
Predicted Ozone Precursor Emissions (Tpy);
Barnett Shale Annual Average Emissions from All Sources;
Near-Field Pollutants of Concern for Inclusion in the Near-Field Monitoring Program (New July 2011);
Department Air Quality Monitoring Requirements for Marcellus Shale Activities (New July 2011);
Assumed Drilling & Completion Time Frames for Single Vertical Well (New July 2011);
Assumed Drilling & Completion Time Frames for Single Horizontal Well (Updated July 2011);
Global Warming Potential for Given Time Horizon;
Summary of Estimated Greenhouse Gas Emissions (Revised July 2011);
Emission Estimation Approaches – General Considerations;
Radionuclide Half-Lives;
Major Development Scenario Assumptions (New August 2011);
Maximum Direct and Indirect Employment Impacts on New York State under Each Development Scenario (New August 2011);
Maximum Direct and Indirect Annual Employee Earnings Impacts on New York State under Each Development Scenario (New August 2011);
Major Development Scenario Assumptions for Each Representative Region (New August 2011);
Maximum Direct and Indirect Employment Impacts on Each Representative Region under Each Development Scenario (New August 2011);
Maximum Direct and Indirect Earnings Impacts on Each Representative Region under Each Development Scenario (New August 2011);
Transient, Permanent and Total Construction Employment Under Each Development Scenario for Select Years: New York State (New August 2011);
Estimated Population Associated with Construction and Production Employment for Select Years: New York State (New August 2011);
Maximum Temporary and Permanent Impacts Associated with Well Construction and Production: New York State (New August 2011);
Transient, Permanent, and Total Construction Employment Under Each Development Scenario for Select Years for Representative Region A (New August 2011);
Transient, Permanent, and Total Construction Employment Under Each Development Scenario for Select Years for

Representative Region B (New August 2011);
Transient, Permanent, and Total Construction Employment Under Each Development Scenario for Select Years for Representative Region C (New August 2011);
Maximum Temporary and Permanent Impacts Associated with Well Construction and Production;
Maximum Estimated Employment by Development Scenario for New York State (New August 2011);
New York State Rental Housing Stock (2010) (New August 2011);
Availability of Owner-Occupied Housing Units (2010) (New August 2011);
Maximum Transient and Permanent Employment by Development Scenario and Region (New August 2011);
Availability of Rental Housing Units (New August 2011);
Availability of Housing Units (New August 2011);
Example of the Real Property Tax Payments From a Typical Horizontal Well (New August 2011);
Example of the Real Property Tax Payments from a Typical Vertical Well (New August 2011);
Projected Change in Total Assessed Value and Property Tax Receipts₁ at Peak Production (Year 30), by Region (New August 2011);
Summary of Generic Visual Impacts Resulting from Horizontal Drilling and Hydraulic Fracturing in the Marcellus and Utica Shale Area of New York (New August 2011);
Estimated Construction Noise Levels at Various Distances for Access Road Construction (New August 2011);
Estimated Construction Noise Levels at Various Distances for Well Pad Preparation (New August 2011);
Estimated Construction Noise Levels at Various Distances for Rotary Air Well Drilling (New August 2011);
Estimated Construction Noise Levels at Various Distances for Horizontal Drilling (New August 2011);
Estimated Construction Noise Levels at Various Distances for High-Volume Hydraulic Fracturing (New August 2011);
Assumed Construction and Development Times (New August 2011);
Estimated Number of One-Way (Loaded) Trips Per Well: Horizontal Well₁ (New August 2011);
Estimated Number of One-Way (Loaded) Trips Per Well: Vertical Well (New August 2011);
Estimated Truck Volumes for Horizontal Wells Compared to Vertical Wells (New August 2011);
Estimated Annual Heavy Truck Trips (in thousands) (New August 2011);
Illustrative AADT Range for State Roads (New August 2011);
PHOTOS;
A representative view of completion activities at a recently constructed well pad (New August 2011);
A representative view of completion activities at a recently constructed well pad, showing a newly created access road in foreground (New August 2011);
A representative view of a newly constructed water impoundment area (New August 2011);
A representative view of a water procurement site (New August 2011);
A representative view of active high-volume hydraulic fracturing (New August 2011);
Electric Generators, Active Drilling Site (New August 2011);
Truck-mounted Hydraulic Fracturing Pump (New August 2011);
Hydraulic Fracturing of a Marcellus Shale Well Site (New August 2011);
Map Depicting Trenton-Black River Wells and Historical Wells Targeting Other Formations in Chemung County;
Map Depicting the Location of Trenton-Black River Wells in the Eastern-end of Quackenbush Hill Field;
Trenton-Black River Well Site (Rhodes);
Trenton-Black River Well Site (Gregory);
Trenton-Black River Well Site (Schwingel)
Trenton-Black River Well Site (Soderblom);
Map Depicting the Locations of Two Trenton Black River Wells in North-Central Chemung County;
Trenton-Black River Well Site (Little);
Trenton-Black River Well Site (Hulett);
Map Depicting the Location of Trenton-Black River Wells in Western Chemung County and Eastern Steuben County;
Trenton-Black River Well Site (Lovell);
Trenton Black River Well Site (Henkel) ;

101. Chapter 7 described the measures the Department had identified that, if implemented, would eliminate or mitigate potentially significant adverse impacts from high-volume hydraulic fracturing operations. A number of significant, new mitigation measures not contained in the 2009 dSGEIS have been identified as follows below in the Revised Draft SGEIS 2011

102. There will be no high-volume hydraulic fracturing operations in the New York City and Syracuse Watersheds. In April 2010 the Department concluded that due to the unique issues presented by high-volume hydraulic fracturing operations within the drinking watersheds for the City of New York and Syracuse, the SGEIS would not apply to activities in those watersheds. Those areas 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 revised analysis of high-volume hydraulic fracturing operations in the Revised dSGEIS concludes that the proposed high-volume hydraulic fracturing activity is not consistent with the preservation of these watersheds as an unfiltered drinking water supply. Even with all of the criteria and conditions identified in this Revised dSGEIS, a risk remains that significant high-volume hydraulic fracturing activities in these areas could theoretically result in a degradation of drinking water supplies from accidents, surface spills, etc. Moreover, such large scale industrial activity in these areas, even without spills, could imperil EPA's Filtration Avoidance Determinations and result in the affected municipalities incurring substantial costs to filter their drinking water supply. Accordingly, the Revised dSGEIS supported a finding that site disturbance relating to high-volume hydraulic fracturing operations not be permitted in the Syracuse and New York City watersheds or

in a protective 4,000 foot buffer area around those watersheds.

103. There will be no high-volume hydraulic fracturing operations on primary aquifers. Although not subject to Filtration Avoidance Determinations, 18 other aquifers in the State of New York have been identified by the New York State Department of Health as highly productive aquifers presently utilized as sources of water supply by major municipal water supply systems and are designated as “primary aquifers.” Because these aquifers are the primary source of drinking water for many public drinking water supplies, the Department recommended in the Revised dSGEIS that site disturbance relating to high-volume hydraulic fracturing operations would not be permitted within a protective 500-foot buffer area around them. Horizontal extraction of gas resources underneath primary aquifers from well pads located outside of this area would not significantly impact this valuable water resource.

104. There will be no high-volume hydraulic fracturing operations on certain state lands. The Revised dSGEIS supported a finding that site disturbance relating to high-volume hydraulic fracturing operations should not be permitted on certain State lands because it is inconsistent with the purposes for which those lands have been acquired. In addition, precluding site disturbance on certain State lands would partially mitigate the significant adverse impacts from habitat fragmentation on forest lands due to high-volume hydraulic fracturing activity. It would preclude the loss of such habitat in the protected State land areas which represent some of the largest contiguous forest patches where high-volume hydraulic fracturing activity could occur. Horizontal extraction of gas resources underneath State lands from well pads located outside this area would not significantly impact this valuable habitat on forested State lands.

105. There will be no high-volume hydraulic fracturing operations on principal aquifers without site-specific environmental review. Principal Aquifers are aquifers known to be highly productive or whose geology suggests abundant potential water supply, but which are not intensively used as sources of water supply by major municipal systems at the present time. In order to mitigate the risk of significant adverse impacts on these important water resources from the risk of surface discharges from high-volume hydraulic fracturing well pads, the Revised dSGEIS proposes that for at least two years from issuance of the final SGEIS, applications for high-volume hydraulic fracturing operations at any surface location within the boundaries of principal aquifers, or outside but within 500 feet of the boundaries of principal aquifers, would require (1) site-specific SEQRA determinations of significance and (2) individual SPDES permits for storm water discharges. The Revised dSGEIS proposed the Department to re-evaluate the necessity of this restriction after two years of experience issuing permits in areas outside of the 500-foot boundary.

106. There will be no high-volume hydraulic fracturing operations within 2,000 feet of Public Drinking Water Supplies. The Revised dSGEIS sought to mitigate the risk of significant adverse impacts on water resources from the risk of surface discharges from high-volume hydraulic fracturing well pads by proposing that high-volume hydraulic fracturing operations at any surface location within 2,000 feet of public water supply wells, river or stream intakes and reservoirs should not be permitted. The Revised dSGEIS 2011 proposed that the Department re-evaluate the necessity of this approach after three years of experience issuing permits in areas outside of this setback.

107. There will be no high-volume hydraulic fracturing operations in floodplains or

within 500 feet of private water wells. In order to address potential significant adverse impacts due to flooding, the Revised dSGEIS supports a finding that the Department not issue permits for high-volume hydraulic fracturing operations at any well pad that is wholly or partially within a 100-year floodplain. In order to ensure that there are no impacts on drinking water supplies from high-volume hydraulic fracturing operations, the Revised dSGEIS also supported a finding that no permits be issued for any well pad located within 500 feet of a private water well or domestic use spring, unless waived by the landowner.

108. There will be mandatory disclosure of hydraulic fracturing additives and alternatives analysis. The Revised dSGEIS identified by chemical name and Chemical Abstract Services (CAS) number, 322 chemicals proposed for use for high-volume hydraulic fracturing in New York. Chemical usage was reviewed by NYSDOH, which provided health hazard information that was presented in the document. In response to public concerns relating to the use of hydraulic fracturing additives and their potential impact on water resources, the Revised dSGEIS added a new requirement that operators evaluate the use of alternative hydraulic fracturing additive products that pose less potential risk to water resources. In addition, in the EAF addendum a project sponsor must disclose all additive products it proposes to use, and provide Material Safety Data Sheets for those products, so that the appropriate remedial measures can be imposed if a spill occurs. The Department would publicly disclose the identities of hydraulic fracturing fluid additive products and their Material Safety Data Sheets, provided that information which meets the confidential business information exception to the Department's records access program will not be subject to public disclosure.

109. There will be enhanced well casing for all hydraulic fracturing in New York State. In order to mitigate the risk of significant adverse impacts to water resources from the migration of gas or pollutants in connection with high-volume hydraulic fracturing operations, the Revised dSGEIS added a requirement for a third cemented “string” of well casing around the gas production wells in most situations. This enhanced casing specification was designed to specifically address concerns over migration of gas into aquifers.

110. There would be required secondary containment and stormwater controls. In order to mitigate the risk of a significant adverse impact to water resources from spills of chemical additives, hydraulic fracturing fluid or liquid wastes associated with high-volume hydraulic fracturing, secondary containment, spill prevention and storm water pollution prevention were comprehensively addressed for all stages of well pad development. The Revised dSGEIS supported the Department’s proposal for a new stormwater general permit for gas drilling operations that would address potential stormwater impacts associated with high-volume hydraulic fracturing operations.

111. Conditions related to disposal of wastewater and solid waste have been reviewed as well. As provided in the 2009 dSGEIS, to ensure that wastewater from high-volume hydraulic fracturing operation is properly disposed, the Department proposed to require that before any permit was issued, the operator must have Department-approved plans in place for disposing of flowback water and production brine. In addition, the Department proposed to require a tracking system, similar to what is in place for medical waste, for all liquid and solid wastes generated in connection with high-volume hydraulic fracturing operations. The Revised dSGEIS also proposed to

expand its requirements for closed-loop drilling in order to ensure that no significant adverse impacts related to the disposal of pyrite-rich Marcellus Shale cuttings on-site.

112. Air quality control measures and mitigation for greenhouse gas emissions have been analyzed. The Revised dSGEIS identifies additional mitigation measures designed to ensure that emissions associated with high-volume hydraulic fracturing operations do not result in the exceedence of any NAAQS. In addition, the Department has committed to implement local and regional level air quality monitoring at well pads and surrounding areas in the Revised Draft SGEIS 2011. The Revised dSGEIS also identifies mitigation measures that can be required through permit conditions and possibly new regulations to ensure that high-volume hydraulic fracturing do not result in significant adverse impacts relating to climate change. The Revised dSGEIS proposes to require a greenhouse gas emission impacts mitigation plan (the Plan). The Plan must include: a list of best management practices for GHG emission sources for implementation at the permitted well site; a leak detection and repair program; use of EPA's Natural Gas Star best management practices for any pertinent equipment; use of reduced emission completions that provide for the recovery of methane instead of flaring whenever a gas sales line and interconnecting gathering line are available; and a statement that the operator would provide the Department with a copy of the report filed with EPA to meet the GHG Reporting Rule.

113. Mitigation for loss of habitat and impacts on wildlife have been incorporated in the promulgation of the rules and regulations. In order to further mitigate significant adverse impacts on wildlife habitat caused by fragmentation of forest and grasslands on private land, the Department proposes to require that surface disturbance in contiguous

forest patches of 150 acres or more and contiguous grassland patches of 30 acres or more within specified Forest and Grassland Focus areas, respectively, be contingent upon site-specific ecological assessments conducted by the permit applicant and implementation of best management practices identified through such assessments.

114. Other control measures have also been addressed and important existing and anticipated regulatory requirements and/or permit conditions that would be imposed to ensure that high-volume hydraulic fracturing operations do not cause significant impacts on the environment in New York include:

1) Before a permit is issued, Department staff would review the proposed layout of the well site based on analysis of application materials and a site visit. Risky site plans would either not be approved or would be subject to enhanced site-specific construction requirements.

2) The Department's staff reviews the proposed casing and cementing plan for each well prior to permit issuance. Permits are not issued for improperly designed wells, and in Revised Draft SGEIS 2011, the case of high-volume hydraulic fracturing, the as-built wellbore construction would be verified before the operation is allowed to proceed.

3) The Revised dSGEIS proposed to require in most cases fully cemented intermediate casing, with the setting depths of both surface and intermediate casing determined by site-specific conditions.

4) Fracturing equipment components would be pressure tested with fresh water, mud or brine prior to the introduction of chemical additives.

5) The Revised dSGEIS required pressure testing of blowout prevention equipment, the use of at least two mechanical barriers that can be tested, the use of

specialized equipment designed for entering the wellbore when pressure is anticipated, and the on-site presence of a certified well control specialist.

6) Flowback water stored on-site must use covered watertight tanks within secondary containment and the fluid contained in the tanks must be removed from the site within certain time periods.

7) The Department has a robust permitting and approval process in place to address any proposals to discharge flowback water or production brine to wastewater treatment plants. The Department would require that before any permit is issued the operator have Department approved plans in place for disposing of flowback water and production brine. Permission to treat such wastewater at a treatment plant in New York State would not be granted without a demonstrable showing that such wastewater can be properly treated at the plant. Additionally, the Department anticipates that operators would favor reusing flowback water for subsequent fracturing operations as they are now doing in Pennsylvania, so that disposal of flowback would be minimized.

8) The Department would require that a Transportation Plan be developed and included with any permit application. That plan would include proposed truck routes and an assessment of road conditions along such routes. Any local road use agreement(s) under the Revised Draft SGEIS 2011 would have to be disclosed and the applicant would have to demonstrate that the roads to be used are sufficient to accommodate the proposed truck traffic.

9) The Department would consult with local governments and, where appropriate, place limits on the number of wells and/or well pads that can be constructed in a specific area at a single time in order to mitigate potential adverse

impacts on community character, tourism and other potential socioeconomic impacts that could result from a concentration of well construction activity in a short period of time within a confined area.

10) The Department would also impose measures designed to reduce adverse noise or visual impacts from well construction.

115. Simply, many of the potential impacts identified in Chapter 6 are addressed and mitigated by existing regulatory programs, both within and outside of the Department. These are identified and described in this chapter, along with recommendations for additional mitigation measures to address additional potential significant adverse environmental impacts from high-volume hydraulic fracturing, which is often associated with horizontal drilling and multi-well pad development. These additional recommended mitigation measures can be imposed as enhanced procedures, permit conditions and/or new regulations. In addition, the proposed EAF Addendum contains a series of informational requirements, such as the disclosure of additives, the proposed volume of fluids used for fracturing, the percentage weight of water, proppants and each additive, and mandatory pre-drilling plans- that in some instances may also serve as mitigation measures. As with Chapter 6, this supplement text is not exhaustive with respect to mitigation measures because it incorporates by reference the entire 1992 GEIS and Findings Statement and the mitigation measures identified therein. Moreover, this chapter identifies and discusses:

- 1) mitigation of impacts not addressed by the 1992 GEIS (e.g., water withdrawal); and
- 2) enhancements to GEIS mitigation measures to target potential impacts associated with horizontal drilling, multi-well pad development and high-volume hydraulic fracturing.

Although every single mitigation measure provided by the 1992 GEIS is not reiterated in the Revised Draft SGEIS, such measures remain available and applicable as warranted.

116. The Department specifically addressed the following areas of promulgating rules and regulations for the below stated in Chapter 7:

PROTECTING WATER RESOURCES;

Water Withdrawal Regulatory and Oversight Programs;
Department Jurisdictions;
Other Jurisdictions - Great Lakes-St. Lawrence River Basin Water Resources Compact;
Other Jurisdictions - River Basin Commissions;
Impact Mitigation Measures for Surface Water Withdrawals;
Impact Mitigation Measures for Groundwater Withdrawals;
Cumulative Water Withdrawal Impacts;
Stormwater;
Construction Activities;
Industrial Activities;
Production Activities;
Surface Spills and Releases at the Well Pad;
Fueling Tank and Tank Refilling Activities;
Drilling Fluids;
Hydraulic Fracturing Additives;
Flowback Water;
Primary and Principal Aquifers;
Potential Ground Water Impacts Associated With Well Drilling and Construction;
Private Water Well Testing;
Sufficiency of As-Built Wellbore Construction;
Annular Pressure Buildup;
Setback from FAD Watersheds;
Hydraulic Fracturing Procedure;
Waste Transport ;
Drilling and Production Waste Tracking Form;
Road Spreading;
Flowback Water Piping;
Use of Tanks Instead of Impoundments for Centralized Flowback Water Storage;
Closure Requirements;
SPDES Discharge Permits;
Treatment Facilities;
Disposal Wells;
Solids Disposal;
Protecting NYC's Subsurface Water Supply Infrastructure;
Setbacks;
Setbacks from Groundwater Resources;
Setbacks from Other Surface Water Resources;

PROTECTING FLOODPLAINS;

PROTECTING FRESHWATER WETLANDS;

MITIGATING POTENTIAL SIGNIFICANT IMPACTS ON ECOSYSTEMS AND WILDLIFE;

Protecting Terrestrial Habitats and Wildlife;
BMPs for Reducing Direct Impacts at Individual Well Sites;
Reducing Indirect and Cumulative Impacts of Habitat Fragmentation;
Monitoring Changes in Habitat;
Invasive Species;
Terrestrial;
Aquatic;
Protecting Endangered and Threatened Species;
Protecting State-Owned Land;
MITIGATING AIR QUALITY IMPACTS;
Mitigation Measures Resulting from Regulatory Analysis (Internal Combustion Engines and Glycol Dehydrators);
Control Measures for Nitrogen Oxides-NO_x;
Control Measures for Sulfur Oxides – SO_x;
Natural Gas Production Facilities Subject to NESHAP 40 CFR Part 63, Subpart HH (Glycol Dehydrators);
Mitigation Measures Resulting from Air Quality Impact Assessment and Regional Ozone Precursor Emissions;
Summary of Mitigation Measures to Protect Air Quality;
Well Pad Activity Mitigation Measures;
Mitigation Measures for Off-Site Gas Compressors;
MITIGATING GHG EMISSIONS ;
General;
Site Selection;
Transportation;
Well Design and Drilling;
Well Completion;
Well Production;
Leak and Detection Repair Program;
Mitigating GHG Emissions Impacts – Conclusion;
MITIGATING NORM IMPACTS;
State and Federal Responses to Oil and Gas NORM;
Regulation of NORM in New York State;
SOCIOECONOMIC MITIGATION MEASURES;
VISUAL MITIGATION MEASURES;
Design and Siting Measures;
Maintenance Activities;
Decommissioning;
Offsetting Mitigation;
NOISE MITIGATION MEASURES;
Pad Siting Equipment, Layout and Operation;
Access Road and Traffic Noise;
Well Drilling and Hydraulic Fracturing;
Conclusion;
TRANSPORTATION MITIGATION MEASURES;
Mitigating Damage to Local Road Systems;
Development of Transportation Plans, Baseline Surveys, and Traffic Studies ;
Municipal Control over Local Road Systems;
Road Use Agreements;
Reimbursement for Costs Associated with Local Road Work;
Mitigating Incremental Damage to the State System of Roads;
Mitigating Operational and Safety Impacts on Road Systems;
Other Transportation Mitigation Measures;

Mitigating Impacts from the Transportation of Hazardous Materials;

Mitigating Impacts on Rail and Air Travel;

COMMUNITY CHARACTER MITIGATION MEASURES;

EMERGENCY RESPONSE PLAN;

Hydrologic Regions of New York (New July 2011) (Taken from Lumia et al, 2006);

Key Habitat Areas for Protecting Grassland and Interior Forest Habitats (Updated August 2011);

Scaling Factors for Matrix Forest Systems in the High Allegheny Ecoregion (New July 2011);

Regulations Pertaining to Watershed Withdrawal (Revised July 2011);

Regional Passby Flow Coefficients (cfs/sq. mi.) (Updated August 2011);

NYSDOH Water Well Testing Recommendations;

Principal Species Found in the Four Grassland Focus Areas within the area underlain by the Marcellus Shale in New York (New July 2011);

Summary of Regulations Pertaining to Transfer of Invasive Species;

Required Well Pad Stack Heights to Prevent Exceedances;

View of a well site during the fracturing phase of development, with maximum presence of on-site equipment. (New August 2011);

Sound Barrier. Source: Ground Water Protection Council, Oklahoma City, OK and ALL Consulting, Tulsa OK, 2009 (New August 2011);

Sound Barrier Installation (New August 2011);

Sound Barrier Installation (New August 2011);

117. Chapter 8 deals with Permit Process and Regulatory Coordination. This Chapter explains inter- and intra-agency coordination relative to the well permit process, including the role of local governments and a revised approach to local government notification and consideration of potential impacts of high-volume hydraulic fracturing operations on local land use laws and policies. Unlike the 2009 dSGEIS, the current Revised draft Supplement supports a condition that local governments be given notice in writing of all high-volume hydraulic fracturing applications in the locality. A continuously updated database of local government officials and an electronic notification system would be developed for this purpose. In addition, the EAF Addendum would require the project sponsor to identify whether the proposed location of the well pad, or any other activity under the jurisdiction of the Department, conflicts with local land use laws or regulations, plans or policies.

118. The project sponsor would also be required to identify whether the well pad is located in an area where the affected community has adopted a comprehensive plan

or other local land use plan and whether the proposed action is inconsistent with such plan(s). Where the project sponsor indicates that the location of the well pad, or any other activity under the jurisdiction of the Department, is either consistent with local land use laws, regulations, plans or policies, or is not covered by such local land use laws, regulations, plans or policies, no further review of local land use laws and policies would be required pursuant to the Revised Draft SGEIS 2011.

119. In cases where a project sponsor indicates that all or part of their proposed application is inconsistent with local land use laws, regulations, plans or policies, or where the potentially impacted local government advises the Department that it believes the application is inconsistent with such laws, regulations, plans or policies, the Department intends to request additional information in the permit application process to determine whether this inconsistency raises significant adverse environmental impacts that have not been addressed in the SGEIS.

120. This chapter shows the spectrum of government authorities that oversee various aspects of well drilling and hydraulic fracturing. The 1992 GEIS should be consulted for complete information on the overall role of each agency. Review of existing regulatory jurisdictions and concerns addressed in this Revised draft SGEIS identified the following additional agencies that will be actively involved:

NYSDOH;

USDOT and NYSDOT;

Office of Parks, Recreation and Historic Preservation (OPRHP);

NYCDEP; and

SRBC and DRBC.

121. The Department specifically addressed the following areas of promulgating of rules and regulations for the below stated in Chapter 8:

INTERAGENCY COORDINATION;

Local Governments;
SEQRA Participation;
NYCDEP;
Local Government Notification;
Road-Use Agreements;
Local Planning Documents;
County Health Departments;
State;
Public Service Commission;
NYS Department of Transportation;
Federal;
U.S. Department of Transportation;
Occupational Safety and Health Administration – Material Safety Data Sheets;
EPA’s Mandatory Reporting of Greenhouse Gases;
River Basin Commissions;

INTRA-DEPARTMENT;

Well Permit Review Process;
Required Hydraulic Fracturing Additive Information;
Other Department Permits and Approvals;
Bulk Storage;
Impoundment Regulation;
Enforcement ;
Enforcement of Article 23;
Enforcement of Article 17;

WELL PERMIT ISSUANCE

Use and Summary of Supplementary Permit Conditions for High-Volume Hydraulic Fracturing;
High-Volume Re-Fracturing;

OTHER STATES’ REGULATIONS;

Ground Water Protection Council;
GWPC - Hydraulic Fracturing;
GWPC - Other Activities;
Alpha’s Regulatory Survey;
Alpha - Hydraulic Fracturing;
Alpha - Other Activities;
Colorado’s Final Amended Rules;
Colorado - New MSDS Maintenance and Chemical Inventory Rule;
Colorado - Setbacks from Public Water Supplies 8.4.4 Summary of Pennsylvania Environmental Quality Board. Title 25-Environmental Protection, Chapter 78,Oil and Gas Wells;
Other States’ Regulations – Conclusion;
Protection of Waters - Dam Safety Permitting Criteria;
Regulatory Jurisdictions Associated with High-Volume Hydraulic Fracturing (Revised July 2011);
Intrastate Pipeline Regulation;
Water Resources and Private Dwelling Setbacks from Alpha, 2009;

122. Chapter 9 discusses the alternatives to well permit issuance that were reviewed and considered by the Department. Chapter 21 of the 1992 GEIS and the 1992 Findings Statement discussed a range of alternatives concerning oil and gas resource development in New York State that included both its prohibition and the removal of oil and gas industry regulation. Regulation as described by the GEIS was found to be the best alternative. The Revised dSGEIS considers a range of alternatives to the proposed approach for regulating and authorizing high-volume hydraulic fracturing operations in New York. As required by SEQRA, the Revised dSGEIS considers the no action alternative. The Department finds that the no action alternative would not result in any of the significant adverse impacts identified herein, but would also not result in the significant economic and other benefits identified with natural gas drilling by this method. The Department believes that this alternative is not preferable because significant adverse impacts from high-volume hydraulic fracturing operations can be fully or partially mitigated.

123. The alternatives analysis also considers the use of a phased-permitting approach to developing the Marcellus Shale and other low permeability gas reservoirs, including consideration of limiting and/or restricting resource development in designated areas. As discussed above, the Department proposes to partially adopt this alternative by restricting resource development in the New York City and Syracuse watersheds (plus buffer), public water supplies, primary aquifers and certain state lands. In addition, restrictions and setbacks relating to development in other areas near public water supplies, principal aquifers and other resources as outlined above are recommended.

124. The Department did not believe that resource development should be

further limited by imposing an annual limit on permits issued for high-volume hydraulic fracturing operations. The Department believed any such annual limit would be arbitrary. Rather, the Department proposed to limit permit issuance to match the Department resources that are made available to review and approve permit applications, and to adequately inspect well pads and enforce permit conditions and regulations.

125. Although it is not possible to predict the number of permit applications that will be submitted in any given area, and therefore proscribe the level of activity that any one operator may undertake in those areas, the Department has the ability to respond and adjust to conditions in the field. If it is demonstrated, for example, that the measures in place to mitigate noise impacts do not adequately address the impact of high-volume hydraulic fracturing on a host community, the Department retained the option through the permitting process to impose additional conditions on operations, such as phasing of drilling operations on adjacent well pads, to prevent or mitigate cumulative or simultaneous operations from impacting nearby residents.

126. The Revised dSGEIS also contained a review and analysis of the development and use of “green” or nonchemical fracturing alternatives. The Department found that the use of environmentally-friendly or “green chemicals” would proceed based on the characteristics of the Marcellus Shale play and other shale plays across the United States, as well as the potential environmental impacts of the development. While more research and approval criteria would be necessary to establish benchmarks for “green chemicals,” the Revised dSGEIS adopts this alternative approach where feasible by requiring applicants to review and consider the use of alternative additive

products that may pose less risk to the environment, including water resources, and to publicly disclose the chemicals that make up these additives. These requirements may be altered and/or expanded as the use of “green chemicals” begin to provide reasonable alternatives and the appropriate technology, criteria and processes are in place to evaluate and produce “green chemicals.”

127. Simply, chapter 9 incorporated the 1992 GEIS and the 1992 Findings Statement which discussed a range of alternatives concerning oil and gas resource development in New York State that included both its prohibition and the removal of oil and gas industry regulation. Regulation as described by the 1992 GEIS was found to be the best alternative. Regulatory revisions recommended by the 1992 GEIS have been incorporated into permit conditions, which have been continuously improved since 1992. The following alternatives to issuance of permits for high-volume hydraulic fracturing to develop the Marcellus Shale and other low permeability gas reservoirs have been reviewed for the purpose of this SGEIS: The denial of permits to develop the Marcellus Shale and other low-permeability gas reservoirs by horizontal drilling and high-volume hydraulic fracturing (No-action alternative); The use of a phased-permitting approach to developing the Marcellus Shale and other low-permeability gas reservoirs, including consideration of limiting and/or restricting resource development in designated areas; and the required use of “green” or non-chemical fracturing technologies and additives.

128. The Department specifically addressed the following areas of promulgating of rules and regulations for the below stated in Chapter 9:

NO-ACTION ALTERNATIVE;

PHASED PERMITTING APPROACH;

Inherent Difficulties in Predicting Gas Well Development Rates and Patterns;

Known Tendency for Development to Occur in Phases without Government Intervention;

Prohibitions and Limits that Function as a Partial Phased Permitting Approach;
Permanent Prohibitions;
Prohibitions in Place for at Least 3 Years;
Prohibitions in Place for At Least 2 Years;
Permit Issuance Matched to Department Resources;
“GREEN” OR NON-CHEMICAL FRACTURING TECHNOLOGIES AND ADDITIVES;
Environmentally-Friendly Chemical Alternatives;
Summary;
Marcellus Permits Issued in Pennsylvania, 2007 – 2010;

129. Chapter 10 dealt with the review of selected non-routine incidents in Pennsylvania. This chapter discusses a number of widely publicized incidents involving high-volume hydraulic fracturing operations in Pennsylvania that have caused public concern about the safety and potential adverse impacts associated with high-volume hydraulic fracturing operations.

130. More than 3,000 Marcellus wells have been drilled in Pennsylvania since 2005, most of which have been or will be developed by high-volume hydraulic fracturing. There were only a few regulatory violations, non-routine incidents and enforcement cases that have been widely publicized and over exaggerated. The measures currently required in New York or those that the Department proposes to require that are designed to prevent similar problems if high-volume hydraulic fracturing is permitted in the Empire State were explained in detail setting forth the regulatory reasons why the incidents would not occur under the Department guidance and regulations.

B. DEPARTMENT'S STUDY ADDRESSED ECONOMIC IMPACTS OF HIGH-VOLUME HYDRAULIC FRACTURING

131. The New York State Department of Environmental Conservation engaged a consultant to assist in analyzing the potential socio-economic impacts of high-volume hydraulic fracturing operations within New York State. This analysis, which was not

sufficiently addressed in the 2009 study, confirmed that high-volume hydraulic fracturing activities could provide a substantial economic boost for the state in the areas of employment, wages and tax revenue for state and local governments.

132. Total direct construction employment is predicted to range from 4,408 full-time equivalent (FTE) workers under a low-development scenario to 17,634 FTE workers under an average development scenario. These employment figures correspond to the annual construction of 413 horizontal and vertical wells under the low-development scenario and 1,652 horizontal and vertical wells under the medium-development scenario.

133. At the peak of activity, employment in jobs operating well pads and related work is expected to range from 1,790 FTE workers under the low-development scenario to 7,161 FTE workers under the average development scenario. The proposed drilling also could generate indirect employment in other sectors of the economy. Indirect employment impacts are expected to range from an additional 7,293 FTE workers under the low-development scenario to an additional 29,174 FTE workers under the average development scenario.

C. DEPARTMENT'S STUDY ADDRESSED COMMUNITY & LOCAL IMPACTS OF HIGH-VOLUME HYDRAULIC FRACTURING

134. The New York State Department of Environmental Conservation engaged a consultant to assist in analyzing the cumulative transportation, community character, noise and visual impacts. The Revised draft SGEIS proposed measures to mitigate substantial adverse impacts.

135. To address impacts on roads and quality of life from truck traffic generated

by high-volume hydraulic fracturing operations, the Department would require drillers to produce detailed transportation plans outlining the proposed number of trucks, truck routes and times of day of truck operations, and assessing road conditions along those proposed routes. These plans must be approved by the Department and the New York State Department of Transportation. Based on the required baseline survey of local roads, drillers would have to ensure the roads can accommodate the proposed truck traffic generated by the activity, and, where applicable, produce road use agreements to show how roads will be upgraded or repaired to address the projected increased truck traffic generated by the drilling operations.

136. To mitigate potential cumulative impacts to community character, the multiple SGEIS studies proposed that the Department, in consultation with local governments, may limit simultaneous development of well pads and wells in proximity to each other. This approach would also help mitigate any noise impacts, visual impacts and impacts from increased truck traffic. The Department will monitor the pace and concentration of development throughout the state and will consider additional measures to mitigate the adverse impacts at the local and regional levels. Where appropriate, and in consultation with local governments, the Department will impose specific construction windows within well construction permits to ensure drilling activity and cumulative impacts are concentrated in one specific area.

137. The Department determined that noise impacts can be mitigated at nearby receptors by a combination of setbacks, site layout design that takes advantage of topography, noise barriers and special permit conditions. A multi-well pad provides the opportunity to locate the operation away from a sensitive noise receptor in a location

where there is intervening topography and vegetation, which can reduce the noise level to the receptor. In addition, roads should be located as far as practicable from occupied structures and places of assembly to minimize traffic noise.

138. The Department would also review proposed multi-well pads within 1,000 feet of occupied structures and places of assembly to determine what mitigation measures are necessary to minimize adverse noise impacts. For such sites, the applicant will also be required to conduct noise modeling to determine noise levels of the closest receptor so applicants can develop appropriate mitigation measures to control noise levels. The Department determined that noise mitigation techniques could include:

- 1) establishing day and night noise level limits;
- 2) using noise reduction equipment;
- 3) limiting certain drilling activities to certain hours;
- 4) installing temporary sound barriers; and
- 5) limiting hydraulic fracturing operations to a single well at a time.

139. The analysis accepted by the Department stated the most significant visual impacts would occur during the construction and development of a well pad, making the impacts temporary in nature. The document recommended that site-specific measures could be implemented in visually sensitive areas in consultation with the Department. Such measures could include screening, relocation, camouflage or disguise, using non-reflective materials and controlling off-site migration of lighting. In addition, the Department determined that restoration activities during well production should significantly reduce visual impacts from HVHF operations

D. DEPARTMENT'S RECOMMENDATIONS FOR PROTECTING DRINKING WATER

140. That when the New York State Department of Environmental Conservation had released its revised recommendations on mitigating the environmental and socio-economic impacts of high-volume hydraulic fracturing (high-volume fracturing), the Department's number one priority was to protect drinking water for all New Yorkers. Specific measures to protect the state's drinking water included prohibiting surface drilling:

- 1) within 2,000 feet of public drinking water supplies;
- 2) on the state's 18 primary aquifers and within 500 feet of their boundaries;
- 3) within 500 feet of private wells, unless waived by landowner;
- 4) in floodplains;
- 5) on principal aquifers without site-specific reviews; and
- 6) within the Syracuse and New York City watersheds.

141. These recommendations protected the state's environmentally sensitive areas while realizing the economic development and energy benefits of the state's natural gas resources. More than 80 percent of the Marcellus Shale, where gas extraction is viable, would still be accessible under these recommendations.

142. The Department determined permits will only be issued consistent with the Department's ability to review and oversee high-volume hydraulic fracturing activities and ensure compliance with permit conditions. In preparing the Revised draft Supplemental Generic Environmental Impact Statement, The Department studied the experiences and regulations in other states, considered more than 13,000 public comments and engaged independent researchers to examine potential socioeconomic

and other local impacts. The Department's recommendations represented the most comprehensive measures in the United States to protect not only drinking water but land, air and environmentally sensitive areas.

143. These rigorous controls included such permitting rules as:

1) Protecting Drinking Water

a. New York City & Syracuse Watersheds: As the only unfiltered surface supplies of municipal water in the state, these watersheds are unique and deserve special protection to maintain their EPA Filtration Avoidance Determinations. Industrial activity, such as increased truck traffic, could impact these determinations. Losing this designation would mean New York City and Syracuse would be required to spend billions of dollars to build water filtration plants. Therefore, high-volume fracturing will be prohibited within these watersheds, within 4,000 feet of their boundaries and within 1,000 feet of NYC's subsurface water supply infrastructure unless approval is granted after site-specific review.

(1) **Well water protection and other water protection:** No permits will be issued for sites within 500 feet of a private water well or domestic use spring, unless this restriction is waived by the landowner. No permits may be issued for a proposed site within 2,000 feet of a public drinking water supply well or reservoir. After three years, this 2,000-foot restriction will be reviewed. No permits will be issued for well pads sited within a 100-year floodplain.

(2) **Additional Well Casing to Prevent Gas Migration:** In most cases, an additional third, cemented well casing is required around each well to prevent the

migration of gas. The three required casings are the surface casing, the new intermediate casing and the production casing. The depths of both surface and intermediate casings will be determined by site-specific conditions.

(3) **Spill control:** All new guidelines will require that flowback water stored on-site be placed in watertight tanks within a secondary containment. No open containment may be used. Secondary containment will also be required for all fracturing additive containers, additive staging areas and flowback tanks to ensure any spills of wastewater or chemicals at the well pad do not migrate into water supplies.

(4) **Stormwater Control:** A new general permit will be required to demonstrate that strict stormwater control measures to prevent stormwater from contaminating water resources are in place.

(5) **Regulating Water Withdrawals:**

(a) New Legislation: Pursuant to the Governor's signing of Department's Water Withdrawal legislation, which the State Legislature passed, a special permit will be required to withdraw large volumes of water for industrial and commercial purposes to ensure there are not adverse impacts.

(b) Permit Condition: All withdrawals from surface water bodies will be subject to limits to prevent impacts upon ecosystems and other water quantity requirements. Identification of the water source an applicant intends to use will be required and an annual report must be issued on the aggregate amount of water it has withdrawn or purchased.

2) Properly Handling Flowback Water:

Since the 2009 SGEIS, many drilling companies have started to recycle much of the flowback water, greatly reducing the need for disposal.

a. Flowback Water Disposal: Applicants must have Department-approved plans for disposing of flowback water and production brine.

b. Drilling & Production Waste Tracking: The Department would institute a process to monitor disposal of flowback water, production brine, drill cuttings and other drilling waste streams that is similar to the handling of medical waste.

c. Water Treatment Facilities: Requires full analysis and approvals under existing state and federal water laws and regulations, which must be completed before a water treatment facility could accept flowback water. This would include a treatment capacity analysis for any publicly operated treatment works facility (POTW) and a contingency plan if the primary disposal for wastewater is a POTW.

3) Taking Local Governments & Communities into Account:

a. Local Government Notification: Department would notify local governments of each well permit application for high-volume fracturing.

b. Local Land Use & Zoning: Applicants must certify that a proposed activity is consistent with local land use and zoning laws. Failure to certify or a dispute regarding consistency raised by a locality would trigger additional Department review before a permit could be issued.

4) Identifying Fracturing Fluid Chemicals:

a. Chemical Identification: The 2011 SGEIS identifies 322 chemicals proposed for use in New York and includes health hazard information for each category of chemicals as identified by the NYS Department of Health. Applicants must fully disclose to the Department all products and combinations used in the high-volume hydraulic fracturing process. In addition, applicants must agree to publicly identify the names of the additives, subject to exemptions where the applicant can prove that the exemption is necessary to protect confidential business information.

b. Chemical Alternatives: Operators will be required to evaluate the use of alternative additives that pose less potential risk.

5) Protecting the Air:

a. Air Quality: Requires enhanced air pollution controls on engines used at well pads. The Department will monitor local and regional air quality at well pads and surrounding areas.

b. Greenhouse Gas Impact: Requires use of existing pipelines when available rather than flaring gas.

6) Conserving Habitats:

a. Private Forestland: Disturbing the surface of the land is restricted in forests of 150 acres or more by requiring applicants to comply with best management practices.

b. Private Grasslands: Disturbing the surface of the land is restricted in grasslands of 30 acres or more by requiring applicants to comply with best management practices.

7) Off-setting Community Impacts:

The Revised draft SGEIS proposed new mitigation measures to address impacts to communities and local governments. A significant mitigation measure is to limit simultaneous construction of well pads and wells in proximity to each other. The Department will consider this measure in consultation with local governments to lessen cumulative impacts. This approach would help mitigate impacts on local community character, as well as cumulative noise, visual and traffic impacts.

Additional proposed mitigation measures include:

a. Traffic: require drillers to produce detailed transportation plans outlining the proposed number of trucks, truck routes and times of day of truck operations, and assessing the conditions of those roads;

b. Noise: site-specific measures could include setbacks, site layout design that takes advantage of topography, noise barriers and special permit conditions; and

c. Visual: site-specific measures could include screening, relocation, camouflage or disguise, using non-reflective materials and controlling off-site migration of lighting

E. THE NEW YORK STATE DEPARTMENT OF HEALTH REVIEW IS BASED ON SPECULATION AND CONJECTURE

144. The New York Department of Health (DOH) is charged with protecting the public health of New Yorkers. The report that was prepared for the “decision” to ban HVHF is completely devoid of any facts to indicate that high-volume hydraulic fracturing is an unsafe practice in the State of New York and, more particularly, on Plaintiff(s)’ properties. The report sets forth that the scientific information was insufficient to make a determination of what, if any, health issues would be impacted on allowing the practice of conducting high-volume hydraulic fracturing (HVHF).

145. More particularly, on Page 1 of the Executive Summary, it sets forth “in assessing . . . activity such as high-volume hydraulic fracturing (HVHF) . . . at a minimum, there must be sufficient information to understand what the likely public health risks will be. Currently, that information is insufficient.”

146. In 2012, the Defendants requested that DOH review and assess Defendants’ analysis of potential health impacts contained in Defendants’ draft Supplemental Generic Environmental Impact Statement for HVHF. In response to the original request from Defendants, DOH initiated an HVHF Public Health Review process. In conducting this public health review, DOH: (i) reviewed and evaluated scientific literature to determine whether the current scientific research was sufficient to inform questions regarding public health impacts of HVHF; (ii) sought input from (only) three outside public health expert consultants; (iii) engaged in field visits and discussions with health and environmental authorities in states with HVHF activity; and (iv) communicated with multiple local, state, federal, international, academic, environmental, and public health “stakeholders”.

147. Further, on Page 1 of said report, it states: “Based on the review, that is apparent that the science surrounding HVHF activity is limited . . . and largely suggests only hypotheses about potential public health impacts . . . That is, many of the published reports investigating both environmental impacts that could result in human exposures and health implications of HVHF activities are preliminary or exploratory in nature.”

148. That it is hard and difficult for the Plaintiff(s) to comprehend that HVHF on their own properties has been denied by the Defendants because of the hereinstated speculation, conjecture or insufficient, inadequate and uncertain scientific evidence to establish any impropriety in HVHF on Plaintiff(s)' properties.

149. Further, reading and review of the DOH Report, the allegations become more absurd and baseless. On Page 2 of said document, the report sets forth: “ . . . absolute scientific certainty regarding the relative contributions of positive and negative impacts of HVHF on public health is unlikely to ever be attained. In this instance, . . . this Public Health Review demonstrates that there are significant uncertainties about the kinds of adverse health outcomes that may be associated with HVHF . . .”.

150. That on Page 3 of said document, the report sets forth that the initial component of the Public Health Review focused on understanding how public health concerns were addressed in the Revised draft SGEIS. More particularly, on Page 4 of said report, the environmental impact and health outcomes were analyzed in the following categories:

(1) Air Impacts;

- (2) Climate Change Impacts;
- (3) Drinking Water Impacts;
- (4) Soil and Water Contamination;
- (5) Surface-Water Contamination;
- (6) Earthquakes; and
- (7) Community Impacts associated with boom-town economic effects involving increased vehicle traffic, road damage, noise, odor complaints, increased demand for housing and medical care, and stress.

151. However, on Page 4 of said document, the report states “an evaluation of the studies reveals critical information gaps”.

152. That the report then states on Page 8 that substantial gaps remain in their own investigation. The DOH stated that systematic investigations studying the effects of HVHF activity on groundwater resources, local-community air quality, radon exposure, noise exposure, wastewater treatment, induced seismicity, traffic, psychosocial stress, and injuries would help reduce scientific uncertainties. While some of the on-going or proposed major study initiatives may help close those existing data gaps, each of these alone would not adequately address the array of complex concerns related to HVHF activities.

153. The report then analyzed numerous studies in making DOH’s decision that the ban should be imposed. The studies reported in the “Review” by DOH and the ultimate conclusions are set forth below:

- a. Marcellus Shale Initiative Study—“Results from this study are not expected to be available for several years.” (Page 8);

- b. University of Colorado at Boulder, Sustainability Research Network—"The cooperative agreement extends to 2017." In other words, this study has not concluded and has no results to "assess and mitigate the problems." (Page 9);
- c. EPA's Study of Hydraulic Fracturing and Its Potential Impact on Drinking Water Resources—"The full study is not expected to be completed before 2016." (Page 10);
- d. Pennsylvania Department of Environmental Protection Comprehensive Oil and Gas Development Radiation Study—"Publication of a report could occur as soon as the end of 2014." Unfortunately, for the DOH, this study has not been completed and thus there are no conclusions to determine if HVHF would be inappropriate on Plaintiff(s)' properties (Page 10);
- e. University of Pennsylvania Study—"A proposed study of HVHF health impacts was announced several months ago." In other words, the University of Pennsylvania has not even commenced the study. (Page 10);
- f. Pennsylvania Department of Environmental Protection—"Recently proposed community air monitoring will determine concentrations of fine and course (silica) particles near a transfer facility that handles hydraulic fracturing silica sand." (Page 10) In other words, this study has only been proposed and there are no conclusions or even scientific evidence gathered that was reported to DOH upon its review process to determine if HVHF in the State of New York and more particularly on Plaintiff(s)' properties was ever established.

154. Continuing, the DOH study states "These major study initiatives may eventually reduce uncertainties regarding health impacts of HVHF and could contribute

to a much more complete knowledge base for managing HVHF risks. However, it will be years before most of these major initiatives are completed.”

155. On Page 11 of said document, the DOH report sets forth that other “governmental and research institutes” have also done assessments. In great detail, the report sets forth many different organizations, colleges, etc. have started reports. However, the report further acknowledges that “while these assessments identify many of the same potential environmental impacts mentioned above, more importantly, they reiterate that significant gaps exist in the knowledge of potential public health impacts from HVHF and of the effectiveness of some mitigation measures.”

156. That what is shocking about this frivolous, baseless, meritless alleged DOH Report analyzing, critiquing, and deciphering these scientific studies is that there are no scientific studies that negatively states that HVHF is a public health concern. “Fracking” has occurred for many decades. Every theoretical health risk would have occurred over these last 40 or 50 years of “fracking”. HVHF will actually have less of an impact on the environment, public health, and society because the number of wells to be drilled will be cut down by potentially 90%. As was set forth in the Revised dSGEIS, HVHF will have less impact on Plaintiff(s)’ properties by less wells dug, less water usage, less roads built, less disturbance of the environment, less use of new materials, less use of carbon imprint and less financial hardship.

157. That on Page 11 of said document, the DOH report states that HVHF is a complex activity that “could” affect many communities in New York State. “Additionally, the relationships between HVHF environmental impacts and public health are complex and not fully understood. Comprehensive, long-term studies, and in particular

longitudinal studies, that could contribute to the understanding of those relationships are either not yet completed or have yet to be initiated. In this instance, however, the overall weight of the evidence from the cumulative body of information contained in this Public Health Review demonstrates that there are significant uncertainties about the kinds of adverse health outcomes that may be associated with HVHF, the likelihood of the occurrence of adverse health outcomes, and the effectiveness of some of the mitigation measures in reducing or preventing environmental impacts which could adversely affect public health.” This statement is stunning as there is no scientific evidence but rather rumor, speculation, conjecture that HVHF would be adverse in the Southern Tier of New York and more particularly, on Plaintiff(s)’ properties.

158. The Conclusion in the Executive Summary, on Page 12, ultimately sets forth that “While a guarantee of absolute safety is not possible, an assessment of the risk to public health must be supported by adequate scientific information to determine with confidence that the overall risk is sufficiently low to justify HVHF in New York. The current scientific information is insufficient.” (emphasis added)

159. Further review of the DOH study clearly established that there was no basis to their conclusion that HVHF on Plaintiff(s)’ properties, or in the State of New York was dangerous to the public health.

160. Under the Federal Rules of Evidence, Rule 702 governs the admissibility of expert testimony. Prior to the enactment of the Federal Rules, the Federal Courts adhered to the “general acceptance” test established in *Frye vs United States*, 293F 1013 (DC Circuit 1923). In *Daubert vs Merrell Dow Pharmaceuticals* the United States Supreme Court held that the Federal Rules of Evidence supersede *Frye*, and the

general acceptance test was no longer required. Unlike the Federal system, the New York courts hold that the Frye test remains the standard for admitting expert testimony. *Zito vs Zabarsky*, 812 NYS 2nd 535 (2nd Department 2006). Pursuant to the Federal cases and New York State cases, either criminal or civil, these “alleged” studies and the individuals who conducted said studies would not even be able to testify under the Frye or Dauber threshold as there is no scientific reliability for any conclusions of any of the studies quoted in the DOH review.

161. On Page 18 of the Report states “Peer-reviewed epidemiologic studies were not found that employ robust study designs addressing possible associations between HVHF activities and adverse health outcomes while providing adequate control for confounding and bias”. In other words, DOH could not even find any other scientist that would give a peer-review verifying the inconclusive, insufficient and deficient studies.

162. Moreover, upon review of the sources of DOH, it appears that the vast majority of their basis was from “anti-fracking” sources. Even the “anti-fracking sources” could not even validate their own allegations of public health issues.

163. Study after study offered by the DOH report clearly establishes that there was no connection or correlation of public health issues as a result of HVHF. DOH used unpublished reports prepared by environmental activists’ organizations that are anti-fracking that could not establish the health issues. The DOH review in the “study” used the following terms:

“casual relationship . . . may overstate the findings”;

“ no association was found”;

“the reports were “unclear””;

“the sample was self selected and there was no assessment of baseline health status or comparison with a similar populations”;

“no information presented”;

“need to follow up investigations”;

“no air or water monitoring data was presented”;

“the symptoms reported were common in the general population and can have many causes”;

“the results did not adequately account for potential confounders”;

“unaffected by HVHF”;

“hypothesis generating”;

“more information needed before drawing any conclusions”;

“uncertainty about the strength of the study conclusions”; and

“non peer-reviewed information.

“authors noted that greater specificity and exposure estimates would be required to further explore the reported associations.” (In other words, when this study was conducted at a well site, they did not know whether it was an HVHF well site as they could not even find enough exposure of environmental agents to even conduct a test to try to show that there was a negative impact by drilling operations.)

164. The DOH review also took studies initiated by other States that allow HVHF and could not draw any negative conclusions or assessments that HVHF would be dangerous for the public health of the residents of the State of New York or on Plaintiff(s)' properties.

165. That it is absolutely devastating that the Defendants would use this study as

a basis to ban HVHF gas exploration in the State of New York. The DOH review had absolutely no verifiable information or evidence that would indicate any negative consequences of HVHF on Plaintiff(s)' properties. However, the studies by Defendants, which occurred over 25 years, consisting of concrete science, historical facts and environmental studies, paid for by New York State taxpayers were ignored.

166. That it is respectfully submitted that the Defendants used unreported studies that were never peer-reviewed by other scientists but simply by environmental groups that were against fracking is a frivolous act of waste and abuse to the taxpayers of New York State. The residents and citizens of the State of New York deserve more in their government than to make major decisions impacting many thousands of landowners, and in particular the Plaintiff(s), involving many billions of dollars of natural gas exploration extraction.

167. Not only would the lifting of the HVHF ban have positive economic impacts on the Plaintiff(s) but it could bring prosperity to the Southern Tier of New York which, in essence, is poverty stricken. The DOH in its "review" admitted that it had insufficient information, inconsistent information, conflicting information and a lack of information to make an intelligent decision to ban HVHF. It is hard for Plaintiff(s) to grasp that the Defendants and political officials would rather have their own political ambitions addressed rather than the needs of the residents of the State of New York, Western New York, the Southern Tier of New York and on Plaintiff(s)' properties. .

F. FINAL SUPPLEMENTAL GENERIC ENVIRONMENTAL IMPACT STATEMENT 2015

168. There is a complete misinterpretation, mischaracterization and misanalysis

by the Defendants of the Department of Health's study that was filed on December 17, 2014. The final SGEIS exaggerates the "findings" of the DOH review.

167. That what has been set forth in the Section "FACTUAL BASIS FOR RELIEF" in the Complaint, the Defendants now contradict approximately 25 years of extensive studies and research in analyzing the viability of HVHF. The 2015 report literally adopts the rumors, speculation, and conjecture of environmental groups that are against HVHF and does not include any concrete scientific studies related to science, technology or geology. Defendants relies on unsubstantiated studies, unreported studies, studies that have not been subject to peer review, and even studies that have not been commenced.

168. The 2015 report indicates that there may be a need to increase some proposed recommendations of placement of well pads, surface water withdrawal requirements and set backs. Plaintiff(s), and the oil and gas industry as a whole, will abide by any rules and regulations that are enacted. The additional revisions would have no negative impact on Plaintiff(s)' properties or the industry.

169. The Defendants' Final SGEIS alleges that if HVHF is an acceptable drilling practice, there would be more widespread impact in certain regions of New York State as there would be more drilling. Clearly, if it is an accepted practice on Plaintiff(s)' land, there will be "increased use". This "increased use" will not only benefit the Plaintiff(s), but many thousands of property owners who will be able to enjoy increased prosperity in the Southern Tier of the State of New York. It would clearly give Plaintiff(s) and other landowners the ability to live better lives, have increased income, and it would stimulate the entire Southern Tier of the State of New York by bringing this area great social and

economic benefits.

170. That the Defendants have exaggerated the “impacts” upon HVHF in the State of New York. Plaintiff(s) welcome the District Court to read, analyze and critique the DOH and Defendants’ final reports that allegedly indicate that HVHF should be permanently banned. The Plaintiff(s) further welcomes the District Court to read the previous studies for the past twenty-five (25) years to clearly show that the final study was not based on science, technology or geology. In particular, water use quantities was a major reason for the ban. However, prior to the ban, the water limits for HVHF were 80,000 gallons per well site. After the ban, the Defendants raised the level to 300,000 gallons for HVHF. If the HVHF process was so devastating involving water usage, why did the Defendants raise the definition of HVHF water usage from 80,000 to 300,000 gallons? This is where the arbitrary, capricious, irrational and Takings actions of the Defendants come into play. There is no scientific, geologic or research to make the determination that 300,000 gallons should be deemed ideal for HVHF. This water usage alone shows the hypocrisy of everything involved with the Defendants’ ban and Takings against Plaintiff(s).

G. THE BAN IS A REGULATORY TAKING IN VIOLATION OF THE UNITED STATES CONSTITUTION

171. Plaintiff(s) own the mineral rights on their properties. The Plaintiff(s) have an absolute right, as owners, to exploit, mine and/or produce any or all the minerals lying below the surface of said properties. Plaintiff(s) not only have the right to extract said resources but also can convey their interests in said economic assets.

172. The Plaintiff(s) have the absolute right to the following:

- 1) The right to use as much of the surface as is reasonably necessary to access the minerals on their property;
- 2) The right to further convey these mineral rights;
- 3) The right to receive economic consideration from conveying said rights;
- 4) The right to receive delay rentals; and
- 5) The right to receive royalties.

173. Plaintiff(s) may separately convey any or all of the above listed interest. The Plaintiff(s) have viable economic interest in the minerals under the surface of their properties. The Defendants' ban has taken Plaintiff(s) ability in the development and exploration of, in particular, the natural gas in the Marcellus and Utica Shale plays.

174. That the ban on HVHF on Plaintiff(s) property has systematically denied the Plaintiff(s) the right for gas exploration. It is not economically feasible and a severe economic hardship will be placed on Plaintiff(s) to conduct conventional drill sites when HVHF technology would extract the natural gas in a more efficient and economic way. The ban by Defendants has, in essence, taken Plaintiff(s)' right in violation of the 5th and 14th Amendments of the United States Constitution to conduct exploration on said properties. In a practical sense, single well conventional drilling is not a viable means of extraction of natural gas as the industry does not and will not invest in "conventional fracking". The industry does not use "conventional fracking" technology as it is outdated technology and is not an acceptable practice in the 21st Century.

175. That in 1922, the first real case of any significance in interpreting the “Takings Clause” of the 5th Amendment, the United States Supreme Court decided *Pennsylvania Coal vs. Mahon*, 260 US 393 (1922). This case involved a regulation enacted by the Pennsylvania legislation to prohibit mining of coal under streets, houses and places of public assembly. The Coal Company held mineral rights in Northeast Pennsylvania and had sold the surface rights to others. The Coal Company argued that a “taking” had occurred under these regulations because it was unable to mine the coal. The United States Supreme Court agreed and said that, while property may be regulated, if the regulation goes “too far”, it constitutes a compensational taking. Though no compensation was ordered in that case, the Pennsylvania law was deemed invalid and the Coal Company was able to extract and use their mineral rights. The analysis of the Court was pursuant to Due Process violations.

176. That governmental land use regulation, that denies the property owner, of economically viable use of their land, is deemed a “taking” of the affected property. See *Lucas vs. South Carolina Coastal Council*, 505 US 1003 (1992); *First English Evangelical Lutheran Church vs. County of Los Angeles* (1987). In *Agins vs. City of Tiburon*, 447 US 25 (1980) the Supreme Court held that the application of land use regulations to a particular piece of property is a “taking” only “if the ordinance does not substantially advance legitimate State interest . . . or denies an owner economically viable use of his/her land”. However, *Lingle vs. Chevron*, 544 US 528 (2005), the Supreme Court overruled the “substantially advanced” criterion of a “taking”. When a government regulation affects a “taking” of private property by such excessive regulation, the owner may initiate inverse condemnation proceedings to recover the just

compensation for the taking of his or her property.

177. That inverse condemnation is a term which describes a claim brought against the government in which a property owner seeks compensation for a “taking” of his property under the 5th Amendment. In the inverse condemnation context, it is the property owner who sues the Government, alleging the “taking” of property without just compensation. See *San Diego Gas and Electric Company vs. City of San Diego*, 450 US 621 (1981); *United States vs. Clark*, 445 US 253 (1980); and *Agins supra*.

178. The Plaintiff(s) submit that the Defendant’s ban on HVHF is a violation of their constitutional rights to Due Process under the United States Constitution and New York State Constitution. The Plaintiff(s) have been denied their constitutional rights because of the ban.

CLASS ACTION

179. That Plaintiff(s) respectfully request the right to amend the Complaint to incorporate a class action suit once the District Court has determined the characteristics of the class pursuant to Federal Rules of Civil Procedure Rule 23 and 28 U.S.C. §1332(d).

FIRST CAUSE OF ACTION

(Regulatory Taking in Violation of the Fifth and Fourteenth Amendments, through 42 U.S.C §1983)

180. The Plaintiff(s) hereby re-allege each and every allegation contained in Paragraphs 1 through 179 as though fully set forth herein.

181. The Fifth Amendment to the United States Constitution, applied to the

States through the Fourteenth Amendment, provides “nor shall private property be taken for public use, without just compensation.” United States Constitution Amendment V.

182. That the actions taken by Defendants are “under color of State law” within the meaning of 42 U.S.C. §1983. Therefore, this Court has jurisdiction over a civil action against Defendants for damages alleging a violation of the United States Constitution. 28 U.S.C. §1343.

183. The Supreme Court has held that a taking categorically occurs when a regulation “denies ... economically beneficial or productive use of land.” *Lucas v. S.C. Coastal Council*, 505 U.S. 1003 (1992).

184. That the actions taken by the Defendants have deprived the Plaintiffs of the use of their property through their governmental regulation.

185. That the Defendants’ prohibition against High Volume Hydro-Fracking constitutes a denial of economically viable use of the Plaintiffs’ property(s). Therefore, Plaintiffs are entitled to just compensation for a taking of their property under the Fifth Amendment.

SECOND CAUSE OF ACTION

(Violation of Due Process Clause of the Fourteenth Amendment)

186. The Plaintiffs hereby re-allege each and every allegation contained in Paragraphs 1 through 185 as though fully set forth herein.

187. The Fourteenth Amendment provides that no State “shall deprive any person of life, liberty or property, without due process of law.”

188. That as a result of Defendants’ actions are “under color of State law” within the meaning of 42 U.S.C. §1983, this Court has jurisdiction over a civil action for

damages alleging a violation of the United States Constitution. 28 U.S.C. §1343.

189. The Supreme has recognized that “a regulation that fails to serve any legitimate governmental objective may be so arbitrary or irrational that it runs afoul of the Due Process Clause.: *Lingle vs Chevron, U.S.A. Inc.*, 544 U.S. 528 (2005).

190. That Defendants’ decision to preclude Plaintiffs from extracting natural gas and other petroleum based products by High Volume Hyrdro-Fracking on Plaintiffs’ properties is arbitrary and irrational.

191. That prohibiting extraction of natural gas and petroleum based products by High Volume Hyrdro-Fracking technology is an arbitrary and irrational restriction on Plaintiff’s’ property rights and violates the Due Process Clause. Therefore, Plaintiffs are entitled to damages pursuant to 42 U.S.C. §1983.

PRAYER FOR RELIEF

WHEREFORE, the Plaintiffs pray for judgment from this Court as follows:

1. A judgment awarding just compensation, in an amount to be determined at trial, for a regulatory taking in violation of the Taking Clause of the Fifth Amendment;
2. A judgment awarding damages, in an amount to be determined at trial, for a violation of the Due Process Clause of the Fourteenth Amendment;
3. An award to David R. Morabito, Esq. of reasonable attorney’s fees and expert fees for bringing and maintaining this action, including under 42 U.S.C. §1988;
4. An award to David R. Morabito, Esq. for reasonable attorney’s fees for the

- Article 78 legal proceedings originating in the Supreme Court of New York-Allegany County (Docket No. 43849), then transferred to the Supreme Court of New York-Albany County (Docket No. 15-3265), then appealed to the New York State Supreme Court-Appellate Division Third Department (Docket No. 523288) and for motions filed in the New York State Court of Appeals (Docket No. 2017-520) for leave to grant certiorari to be heard as a right or for statewide importance;
5. An award to the Plaintiffs of cost of suit pursuant to Federal Rules of Civil Procedure 54(d); and
 6. An award to the Plaintiffs of any other and further relief that the Court deems just and proper under the circumstances of this case.

Dated: East Rochester, New York
November 1, 2017

Yours, etc.

DAVID R. MORABITO, ESQ. and
COLETTE M.G. MORABITO
PO Box 187
117 West Commercial Street
East Rochester, NY 14445
(585)586-5770

STATE OF NEW YORK)
COUNTY OF MONROE) ss:

I, DAVID R. MORABITO, being duly sworn, depose and states: I am the Plaintiff in the foregoing Complaint; that said Complaint is true on my own personal knowledge except as to the matters hereinstated to be alleged upon information and belief and as to those matters, I believe it to be true. The allegations stated herein are based on studies prepared by the Department and other regulatory sources of Defendants.

/s/ David R. Morabito
David R. Morabito

Sworn to before me this

1st day of December, 2017

 /s/ Kevin A. Morabito

Commission expires 12/24/17

STATE OF NEW YORK)
COUNTY OF MONROE) ss:

I, COLETTE M.G. MORABITO, being duly sworn, depose and states: I am the Plaintiff in the foregoing Complaint; that said Complaint is true on my own personal knowledge except as to the matters hereinstated to be alleged upon information and belief and as to those matters, I believe it to be true. The extensive allegations stated herein are based on studies prepared by the Department and other regulatory sources of Defendants.

/s/ Colette M. G. Morabito
Colette M.G. Morabito

Sworn to before me this

1st day of December, 2017

 /s/ Kevin A. Morabito

Commission expires 12/24/17