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THE LEAGUE
OF WOMEN VOTERS
of New York State

January 10, 2012

Attn: dSGEIS Comments
New York State Department of
Environmental Conservation
625 Broadway
Albany, New York 12233-6510

Dear Commissioner Martens:

This letter is being submitted by the League of Women Voters of New York State (the "League") in connection with the revised draft of the supplemental generic environmental impact statement ("SGEIS") issued in full by the New York State Department of Environmental Conservation ("DEC") in September, 2011 with respect to natural gas extraction by use of vertical and horizontal drilling combined with high volume slick water hydraulic fracturing ("HVHF" or "fracking").

The League notes that the mission of DEC (as set forth on its website) is "to conserve, improve and protect New York's natural resources and environment and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being." Further, "DEC's goal is to achieve this mission through the simultaneous pursuit of environmental quality, public health, economic prosperity and social well-being, including environmental justice and the empowerment of individuals to participate in environmental decisions that affect their lives."

The League is proud of its decades of participation in environmental decisions that affect our lives. The task at hand ranks among the most compelling issues of this generation, simply because it employs a generic review process to address and resolve highly complex issues introduced by an inherently risky heavy industrial activity consisting of numerous complex steps, intended to occur on an unprecedented scale, potentially over decades, in such varied non-industrial locations as rural farms, residential neighborhoods, tourist attractions and colleges and

universities. New York holds within its borders a complex and abundant water supply. The decisions this government makes today about safeguarding our air, water and soil will have potentially irreversible impacts on the lives of our children and the environment in which they live.

The League of Women Voters of the United States affirmed a statement on natural resources at its 1986 convention (hereinafter the “League Position”) stating that “*natural resources should be managed as interrelated parts of life-supporting eco-systems. Resources should be conserved and protected to assure their future availability. Pollution of these resources should be controlled in order to preserve the physical, chemical and biological integrity of ecosystems and to protect human health.*”

With the League Position as a standard, we have reviewed the SGEIS in light of numerous papers and studies, gas company shareholder disclosure documents outlining the myriad risks inherent in the shale gas extraction lifecycle, recent confirmation by EPA linking water contamination in Wyoming to HVHF, recent confirmation by the US Geological Survey linking deep well injection (which characterizes the very HVHF process) to earthquakes, and recognition of the dearth of evaluative data available on the short-term and long-term cumulative economic costs and benefits. We have also considered the allocation and insurability of costs for the drilling activity and resulting damage, impacts on property value and state and local tax base and health, environmental and sociological impacts. The League supports a moratorium in New York State on issuance of drilling permits for horizontal (and vertical) wells until: 120 days after the federal EPA issues a report on the effects of hydraulic fracturing on water quality and public health; incorporation of the findings of that report into the state legal and regulatory process; and adoption of a legal and regulatory environment sufficient to protect New York’s natural resources and public health.

In the context of the decision to allow HVHF, the SGEIS should separately identify risks inherent in the process and those occurring as the result of human error, for the cause of the risk may suggest different means of avoidance and/or remediation. The permitting process should not allow for the transfer of risk for adverse externalities, such as air and water pollution and adverse health consequences, from gas companies to citizens at large.¹

In preparation for the potential future permitting of HVHF and consistent with an environmental impact review and establishment of regulations commensurate with the DEC’s mission, the League supports: (i) in areas where drilling is to occur, but before any activity commences, baseline assessments of natural resources (air, water), human health indicators, and municipal and private real property that are vulnerable to alteration from the drilling activity (as more particularly addressed below); (ii) completion and publication of the results of the national research study by EPA to assess the risks fracking poses to water resources; (iii) an air impact assessment including short-term and long-term effects of volatile organic compounds and diesel exhaust that combine to form ozone and methane; (iv) attention in the SGEIS relative to pipeline and compressor safety since these operations continue in effect for the drilling lifecycle, and documentation reflecting communication between DEC and the Public Service Commission

¹ For a discussion of the cost of externalities, defined as an activities that impose uncompensated costs on other people, see *Energy: Friend or Enemy?*, New York Review of Books (October 27, 2011) at <http://www.nybooks.com/articles/archives/2011/oct/27/energy-friend-or-enemy/>.

evidencing a coordinated, seamless link between their respective responsibilities; (v) analysis of long-term effects of release of naturally occurring radioactive material (“NORM”) at the levels found in New York’s Marcellus Shale, into the air, waterways and soil, and effects of NORM interactions with fracking chemicals (whether toxic or benign), brine and other additives; (vi) financing and development of state of the art waste treatment facilities to handle the hazardous frack waste (flowback and produced water) so as to prevent water and soil contamination and air pollution; (vii) completion and analysis of a comprehensive peer-reviewed health impact assessment with cooperation of the Department of Health; (viii) completion of the expanded review and analysis by a group of scientists, sociologists and economists with no links to the industry, whose work will be subject to peer review, of the socio-economic costs of the drilling life-cycle (more particularly addressed below); (ix) establishment of setback requirements consistent with preservation of health, safety and welfare of all New York residents (more particularly addressed below); (x) development and implementation of a risk management plan providing for preservation of the value of properties subject to gas leases, preservation of the assessed value of property subject to gas leases or drilling activity and the resulting real property tax base, allocation to the gas industry of responsibility for all costs and expenses for drilling operations and damage arising out of the drilling operations, and the establishment of an up-front, point-of-permitting, fund maintained by the Office of the Comptroller or DEC for the duration of the drilling lifecycle, plus 100 years after the well is plugged, for the exclusive use of compensation for health-related impacts and remediation to, and restoration of, property and natural resources (air, water, soil) impacted by the gas extraction lifecycle.

Across the Board Baseline Analyses

The only way to make sense in the future of impacts in New York from HVHF is to establish objectivity- to begin at the beginning. To this end, the League recommends that all current “exploratory” or test wells and all future production wells include mandatory baseline assessments of: (i) basic health statistics of people living within the proposed spacing unit and people residing at properties immediately adjacent to properties in the proposed spacing unit; (ii) well water and proximate watercourse monitoring and testing; (iii) air monitoring and testing (including methane, VOC’s including radon, and diesel exhaust); and (iv) property boundary surveys (to preserve property value). In addition, aerial (through Google maps and flyovers) and on-the-ground, pre-drilling photographic images of all the property in and adjacent to spacing units would be archived for later use to determine changes in surface use, boundaries, topographic and subsurface variations over time and other currently unforeseeable long-term impacts. The cost for baseline data collection and testing would be borne by the industry as part of the DEC permit fee for the relevant spacing unit, with testing performed by third parties selected by a panel of scientists and physicians and real property attorneys unrelated to or selected by the industry and analyzed in a peer-reviewed setting. New York and out-of-state colleges and universities developing research in areas relevant to impacts of the shale gas extraction lifecycle would have access to the data for scientific purposes. Data derived from individual properties should be available for use by the property owner. The data would also provide assistance in administering the remediation fund recommended by letter, dated July 18, 2011 from the League to DEC and more particularly described in the risk management section, below. (See http://www.lwvny.org/advocacy/hydrofracking/letter_071811.pdf.) The League acknowledges that State Comptroller Thomas DiNapoli publicly supported the establishment of a remediation fund beginning in August 2011; further, on December 29, 2011 the Comptroller, in a

letter to DEC, announced a new bill (A8572) to establish a Natural Gas Production Contamination Damage Recovery and Remediation Fund, now introduced into the State Assembly by Assemblyman Sweeney, the purpose of which appears to be consistent with the recommendation made by the League. While the League favors prevention of adverse impacts through the drilling lifecycle, we urge DEC to fully support this fund, the success of which will be optimized by establishing baseline assessments as set forth here.

Air Quality

The League supports an integrated approach to monitoring air emissions throughout the lifecycle, as follows:

- regulation of pollution sources by control and penalties
- inspection and monitoring
- full disclosure of pollution data
- vigorous enforcement mechanisms including sanctions and fines
- regulation and reduction of pollution from mobile and stationary sources
- regulation and reduction of toxic ambient-air pollutants.

The oil and natural gas industry includes a wide range of operations and equipment, from wells to natural gas gathering lines and processing facilities, to storage tanks, and transmission and distribution pipelines. Significant air pollution occurs around gas drilling sites and related infrastructure from diesel exhaust of trucks and equipment used in connection with fracking, venting and flaring and emissions from compressor stations. The EPA is so concerned about the alarming rate of pollution occurring with increased gas drilling that it plans to issue regulations to curb emissions in 2012. Its website refers to oil and gas drilling together in describing and defining the industry's emissions and points to the fact that infrastructure is a very large component of such emissions. (See EPA website on gas drilling and air pollution at <http://www.epa.gov/airquality/oilandgas/basic.html>)

The industry is the largest industrial source of emissions of volatile organic compounds ("VOCs"), a group of chemicals that contribute to the formation of ground-level ozone. Exposure to ozone is linked to a wide range of health effects, including aggravated asthma, increased emergency room visits and hospital admissions, and premature death. EPA estimates VOC emission from the oil & natural gas industry at 2.2 million tons a year in 2008. (See <http://www.epa.gov/sectors/pdf/oil-gas-report.pdf>; 2.3.1.)

The oil and natural gas industry also is a significant source of emissions of methane, a greenhouse gas that is more than 20 times as potent as carbon dioxide. Emissions of air toxicants such as benzene, ethylbenzene, and n-hexane, also come from this industry. Air toxicants are pollutants linked to a wide range of health effects including aggravated asthma, lung cancer and premature death, all of which generate increased visits to the emergency room and hospital admissions.

Air emissions from compressors and pipelines have been proven harmful to human health, often worse than emissions from activities related to the well pads. Besides the volatile organic compounds that cause health problems when inhaled, methane escapes into the atmosphere from

pipeline leaks. Methane leaks and other emissions from the production, transportation and processing of natural gas give it a more damaging carbon footprint than coal over a 20 year period (See <http://psehealthyenergy.org/site/view/891>). Thus, another impact from gas infrastructure is that it speeds climate change, further harming our earth and its life forms.

Gathering Pipelines, Compressor Stations and Other Infrastructure

Comments on Section 3.2.2.2. The SGEIS is only as effective as the sum of its parts; to fulfill its stated mission, it is incumbent upon DEC to study the impacts of gathering lines, pipelines, compressor stations, and other infrastructure involved in gas processing, storage and delivery, even if DEC does not exclusively oversee or enforce all aspects of the drilling lifecycle. In its current form, the SGEIS primarily addresses impacts from drilling and production of the gas wells. It does not include potential impacts of new gathering and distribution arteries that would have to be built for the proposed large-scale development of the tens of thousands of wells that are planned for the state. Such infrastructure could have detrimental effects on human and environmental health.

The DEC asserts that omission of such impacts is due to the fact that the agency is only responsible for the permitting of wells, whereas pipeline and compressor station permits are issued by the Public Service Commission (PSC). In its executive summary, the DEC states what technically falls under its purview: “The Department regulates the drilling, operation and plugging of oil and natural gas wells to ensure that activities related to these wells are conducted in accordance with statutory mandates found in the ECL.” It states that the SGEIS covers “drilling and production of separate oil and gas wells.”

In the SGEIS itself, the last paragraph of Section 3.2.2.2 reiterates the point that DEC does not feel obligated to study impacts of gas infrastructure not related to the well permitting process: "Gathering lines and pipelines are not within the scope of project review as the PSC has exclusive jurisdiction to review these activities under Public Service Law Article VII. Compressor stations associated with gathering lines and pipelines are also under the PSC's Public Service Law Article VII review authority except that DEC has jurisdiction under ECL Article 19 (Air Pollution Control) to review air emissions and ECL Article 17 for the SPDES program. The foregoing is discussed in greater detail in Chapter 3 of the SGEIS and Section 1.5 of the Final Scope. Chapter 5 of this Supplement describes the facilities likely to be associated with a multiwell shale gas production site, and Chapter 8 provides details on the PSC's environmental review process for these facilities."

The fact that DEC does not directly oversee the permitting process for pipelines, compressor stations, etc. should not be a reason to omit consideration of the highly significant impacts from these large-scale projects that are intrinsically tied in to the gas-drilling industrial complex. This results in an incomplete SGEIS to the detriment of DEC's mission.

The League therefore recommends, prior to permitting, a thorough, scientific analysis of cradle-to-grave impacts on land, water, air, and human health resulting from gas extraction, processing, storage and delivery. Only with scientific data of the full lifecycle can we truly understand how shale gas extraction using current technology will affect New York's environment and the health of our citizens.

Gas Infrastructure Impacts on Environmental and Human Health

Clearing and digging land to install gas infrastructure destroys trees and other natural habitats. Construction of access roads, pipelines and well pads often cuts up and segments farmland as well as scenic landscapes. Livestock and wildlife habitats are disrupted. Besides the harm to land and ecosystems from these activities, gas infrastructure can leak, explode, and emit chemicals that contaminate land, groundwater, rivers, streams and aquifers.²

² Our current understanding of the degree and mechanisms of harm is less than complete, although, increasingly, these issues are being studied, and scientists are calling for further study. (See *Health Consultation – Chesapeake ATGAS 2H Well Site, Leroy Hill Road, Leroy – Leroy Township, Bradford County, PA*, Centers for Disease Control (2011) at <http://www.atsdr.cdc.gov/HAC/pha/ChesapeakeATGASWellSite/ChesapeakeATGASWellSiteHC110411Final.pdf> and related discussion in the Wall Street Journal, *CDC scientist: tests needed on gas drilling impact*, Wall Street Journal, Associated Press (January 4, 2012) at <http://online.wsj.com/article/AP8338b702930849f49d22a5d96b7d1b2d.html>.)

The CDC *Health Consultation* recommended, among other things, that:

5. . . . future environmental assessment at natural gas hydraulic fracturing sites in the Marcellus Shale formation address the following:
 - a. Environmental exposure pathways in addition to groundwater should be included (e.g., fish in potentially impacted surface water bodies, livestock consuming potentially impacted surface water, air).
 - b. In addition to the parameters commonly monitored and sampled in groundwater, ATSDR recommends that methane, ethane, lithium, strontium, and radiological parameter sampling should be included in “pre drilling” and “post drilling” private groundwater sampling events.
 - c. Head space gas monitoring for methane and ethane and other volatile organic compounds should be conducted.
 - d. Drinking water should also be tested for radon (and indoor air should be tested for radon). Many areas of Pennsylvania have elevated levels of naturally occurring radioactivity, including radon. Radon testing information would permit a more comprehensive consideration of total radioactive dose from gross alpha radiation for these locations. A more detailed future analysis of the water would be helpful to confirm if radiation levels are elevated, and if so if this is the result of naturally occurring radioactive material or technologically enhanced naturally occurring radioactive material.
6. . . . all private groundwater well users routinely sample their wells for biological, chemical and physical parameters at least annually, especially those in close proximity to natural gas drilling activities.

In discussing these findings, Dr. Christopher Portier, director of the National Center for Environmental Health at the federal Centers for Disease Control and Prevention in Atlanta, noted that, “much more research is needed to determine the possible impacts of shale gas drilling on human health and the environment.” He indicated, “Studies should include all the ways people can be exposed, such as through air, water, soil, plants and animals.” “We do not have enough information to say with certainty whether shale gas drilling poses a threat to public health,” he wrote. “More research is needed for us to understand public health impacts from natural gas drilling and new gas drilling technologies.”

He also suggested pre- and post-testing of private drinking water wells near drilling sites.

Duke University researcher Rob Jackson indicated in the Wall Street Journal article, ““What’s safe in Oklahoma might not be an acceptable risk somewhere else, where the population density is higher. And you have different geology.”

The League recommends that DEC adopt an integrated approach with the SGEIS and not withhold from its analysis the potential effects just described. We have already noted the glaring omission of a health impact assessment in the SGEIS. A comprehensive study of potential long-term cumulative health effects should be carried out and incorporate impacts that would result from thousands of miles of pipelines and hundreds of compressor stations in addition to the drilling activity itself. These natural gas infrastructure components are known to be environmentally disruptive and susceptible to leaks, accidents, and harmful air emissions. All of these risks can have serious impacts on human health.

Infrastructure Defects, Spills, Explosions

Leaks, faulty welds, and explosions are among the problems associated with natural gas pipelines in New York and throughout the world.

The Millennium Pipeline, which is brand new and runs through New York State's Southern Tier, was declared unsafe this year due to faulty welds. A leak was discovered after a bubbling creek was spotted in Owego in January 2011. The New York State Department of Public Service conducted an investigation and determined that 1.3 million cubic feet of methane were released from the pipeline as a result of this leak. The defective welds could lead to a rupture and are a health and safety risk, according to the report. The pipeline build-out required for the projected number of gas wells indicated in the SGEIS would compound the possibility of similar structural problems and associated risks. Thus we reiterate the need for the SGEIS to encompass pipelines.

In November 2011, federal officials ordered the shutdown of 27 miles of natural gas pipeline in Ohio because of repeated problems with welds in the pipe, including one linked to an explosion that leveled several houses.

On September 9, 2010 in San Bruno California, 12 miles south of San Francisco, an explosion caused by a 30-inch gas pipe rupturing underground destroyed dozens of homes, killed eight people, and injured over 60 more. The New York Times reported that

Given that Leroy Township PA, which was the subject of the CDC report, has a population of 718 residents, with an approximate population density over 48 square miles of 15 people per square mile (US Census 2010). (CDC Health Consultation, p. 1), New York City has a population density of 26,402.9 people per square mile (Wikipedia at http://en.wikipedia.org/wiki/List_of_United_States_cities_by_population_density) and New York State has an average population density of 411 people per square mile and is the 9th most densely populated state in the country, as opposed to Oklahoma's 54.7 people per square mile, making it the 37th most densely populated state in the country, (<http://2010.census.gov/2010census/data/apportionment-dens-text.php>), risks that may be acceptable in states that have embraced HVHF are inappropriate for New York state without further investigation.

At a minimum New York should delay issuance of the SGEIS and hold open the comment period for proposed regulations until 120 days after issuance of the final EPA study.

one of the National Transportation Safety Board members, Christopher A. Hart, “toured the site and said he had been stunned by the destruction he saw.” He said a large portion of the pipe had been blown out of the ground and across the road. “My immediate assessment was the amazing destruction, the charred trees, the melted and charred cars, the houses disappeared,” he said. The article revealed that the incident was one of 65 gas pipeline accidents involving the operator, Pacific Gas and Electric, in a six-year period. (See, *Inquiry Shifting Cause of Blast in the Bay Area*, by Adam Nagourney and Malia Wollan, The New York Times, September 11, 2010.)

Compressor stations also are susceptible to malfunctions and accidents. For example, on November 3, 2011, AOL Energy reported on an explosion of a natural gas compressor station in the southern Pennsylvania town of Artemus that resulted in a fire. The station belongs to Houston-based Columbia Gas Transmission. Approximately 150 people were evacuated, and the incident raised concerns about safety amid the shale-gas boom that is spreading throughout the state. Working with local fire and emergency services, company officials shut down the station and a nearby underground gas-storage facility, and the fire was extinguished. (See, *Midnight Pennsylvania Explosion Fuels New Marcellus Safety Concerns* by John Hurdle, AOL Energy, November 3, 2011.) This incident could have caused much greater harm if the gas-storage facility had caught fire. This represents another sector related to safety of the industry overlooked in the SGEIS.

Development of drilling for shale gas in New York will bring with it extensive pipeline networks, and potential impacts should be addressed. Analyzing and reporting in the SGEIS on events such as the San Bruno explosion would likely inform regulators how best to prevent similar accidents or otherwise mitigate negative impacts of future pipeline failures. For example, in our region, the Federal Energy Regulatory Commission “FERC” is currently considering a 36-inch gas line pipeline that Spectra Energy proposes to run underneath densely populated areas of New Jersey and Manhattan. It is critical that New York learn from California’s misfortune. The fact that other agencies such as FERC and PSC have regulatory approval over some pipeline projects should not preclude DEC from incorporating pipeline impacts into the SGEIS. Indeed, using the SGEIS as a means to collaborate with other regulatory bodies having related responsibility would fulfill DEC’s mission and better serve New Yorkers. It has also been noted that gathering lines are not regulated by the PSC or other agency, making them particularly vulnerable to accidents and explosions.

We would also ask DEC, in its permitting and fulfillment of its mission, to take into consideration that placement of gas infrastructure precludes other land uses. It should note how many acres of agricultural, transportation infrastructure, civic, business, commercial, educational, alternative energy and recreational uses will be displaced or precluded by gas infrastructure.

Compressor Stations

An enormous amount of drilling-related air emissions is associated with compressor stations. Compressors emit VOCs such as radon and benzene during venting and flaring. There is also pollution emanating from diesel exhaust. Prof. Al Armendariz, Ph.D., of the Department of Environmental and Civil Engineering at Southern Methodist University, studied emissions of

smog-forming compounds from oil and gas in Texas' Barnett Shale within the Dallas/Fort Worth metropolitan area. (See *Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements*, Al Amendariz for Ramon Alvarez, Environmental Defense Fund (2009).) His study concluded that the region, with 7,700 existing wells in 2008, experienced per-day average emissions of 191 tons per day, ("tpd") from drilling-related activities in 2009. (By comparison, the on-road motor vehicle emissions in this region were 121 tpd, indicating that the oil and gas sector likely has greater emissions than motor vehicles in the area.) Over half of the drilling-related emissions, 96 tpd, came from compressor engine exhausts and tanks. Thus, we see that science points to very real and significant impacts on air quality from this industrial activity, and over half of it is from compressor engines and tanks alone. Such health impacts must be addressed in the SGEIS, which must include effects from the entire infrastructure, not just wells.

Waste Treatment

Waste, both liquid and solid, resulting from HVHF contains hazardous substances including toxic heavy metals and chemicals which are known to cause cancer, among other things, and therefore represents a significant cause of concern for the environment and human health. Landfills do not provide an appropriate destination for this waste because materials placed in landfills may contribute to air and water contamination.³ Establishing operational, safe waste-treatment facilities or a safe methodology to process the hazardous waste produced in the fracking process (flowback, produced water and solid waste), without risk to air, water or soil, is therefore critical before issuance of any drilling permits. For example, results of research performed by Tracy Bank from the University of Buffalo stated that naturally occurring uranium and hydrocarbons (shale gas) are "in the same physical space" and further that "they are not just physically-but also chemically-bound." Also noted by Bank, was that when "the millions of gallons of water used in hydraulic fracturing come back to the surface, it could contain uranium contaminants, potentially polluting streams and other ecosystems and generating hazardous waste." Bank also stated, "Even though at these levels, uranium is not a radioactive risk, it is still a toxic, deadly metal." (See *Fracking Releases Uranium in Shale* by Ellen Goldbaum, UB Reporter, November 4, 2010) According to this report, New York has higher levels of uranium in its portion of the Marcellus Shale than usually found naturally. Once New York commences shale gas extraction through unconventional drilling, the mile deep uranium will be brought to the surface. Yet, New York has no existing in-state facilities to handle the hazardous frack waste containing heavy metals such as uranium and radium 226. Relying on facilities or methodologies used in other states requires that New York confirm its waste can be accepted outside of its borders at the potential levels of heavy metal toxicity known to exist in New York's Marcellus Shale. If this waste cannot be effectively treated, it will present a health risk not easily susceptible of remediation (if at all), to all citizens living adjacent to, downwind and downstream of the locations where the waste is deposited.

Various attempts have been made to treat flow-back waste products at a number of New York municipal treatment plants only to be halted when total dissolved solids levels rose to unacceptable levels or the plant's biologic processes were compromised. The DEC's 2008 report

³ We believe the issue of waste disposal in the HVHF process is analogous to that of nuclear waste disposal, which has yet to be adequately resolved. Although the levels of toxins may not be as high, the sheer volume of wells, with their concomitant flowback water, poses a potential problem of enormous magnitude.

“Wastewater Infrastructure Needs of New York State” (See http://www.dec.ny.gov/docs/water_pdf/infrastructurerpt.pdf.) projects an unfunded \$36 billion cost to repair, replace and update the state’s aging municipal treatment plants over the next 20 years. The SGEIS should delete any suggestions that waste from fracking operations can be treated adequately in the state’s municipal treatment plants.

Deep well injection, a process used in Arkansas, Oklahoma and Ohio and dubbed a “state of the art” disposal option, has been associated with numerous earthquakes in each of these states, one in Oklahoma ranking a magnitude 5.4 on the Richter scale. Following the Oklahoma earthquake in November, 2011, the US Geological Survey now openly links forcing frack waste fluids underground under high pressure by means of deep well injection to increased seismic activity, i.e., earthquakes. Most recently, as a result of a magnitude 4 earthquake the (the 11th in 2011) near an injection well in Youngstown, Ohio on December 31, 2011, the Ohio Division of Natural Resources has ordered the closure of four injection wells (which include storage of fracking wastewater containing heavy metals and chemicals known to cause cancer), pending determination of a possible link between the deep well injection and seismic activity (See *Official: 4 Ohio fluid-injection wells cannot open in wake of quake*. CNN, January 1, 2012.) Based upon the foregoing information, deep well injection does not present itself as a viable option within our state or outside of our state. No drilling permit for vertical or horizontal fracturing should be issued until DEC establishes that safe waste treatment exists for processing the HVHF waste.

Prohibited Drilling Areas (Setbacks and Buffers)

The League considers it critical that DEC protect the safety of municipal and well water resources used for human consumption, agriculture and other life-sustaining purposes whether they are located upstate or downstate; this includes all aquifers, reservoirs, lakes, rivers and streams. Setback and buffer requirements represent an effective method for achieving this goal; but we note that they are not fool-proof, since water knows no boundaries, and no engineered conduit operating under high pressure is risk-free. The notion that drilling occurs thousands of feet deep and that triple casings, if used the entire length of the vertical shaft, prevent contamination of water runs contrary to two facts. The first is that cement outside the casings can and will crack over time. The second is that everything that is pushed down the well under very high pressure does not come back up. Combined with newly released NORM and heavy metals from fracturing the shale, some of the liquid can go into previously-existing cracks and fissures or newly created ones and migrate elsewhere. Further, setbacks and buffers do not prevent leaks, spills, or accidents above-ground, let alone by intentional dispersal of liquids on road surfaces. Hundreds (and possibly thousands) of families in Pennsylvania and other drilling states whose water has been contaminated receive bottled water from the companies that are fracking in the area. Since non-disclosure agreements preclude on-the-record accounts, it is not possible to confirm either the magnitude or the cause of the problem. Therefore, extreme caution is warranted, especially in a state such as New York with its abundance of underground aquifers that feed its numerous waterways, which in turn provide sustenance for its millions of residents.

The buffers and prohibited drilling areas proposed in the SGEIS include vertical and horizontal setbacks. Mainly, they are surface horizontal setbacks, as the most damage from HVHF so far

has come from surface level accidents and spills; but the later contamination of our drinking water can arise from underground via faults and fissures, abandoned and improperly plugged wells. (See <http://www.nytimes.com/interactive/us/drilling-down-documents-7-intro-page.html?ref=us&gwh=1AAAB9B70C9A94788E6BC2630F590117>.) A look at the buffers and proposed prohibited drilling areas reflects numerous inconsistencies. The distances for buffers and prohibited drilling areas vary. In addition, there are qualifications, exceptions and omissions; neither is the basis for each of the discrepancies substantiated, so the scientific rationale cannot be determined. Reasons are not given for the inconsistencies.

The inconsistent treatment in New York State regarding water sources is illustrated below. The following notes the areas where neither HVHF nor individual permits in the NYS DEC SPDES General Permit for Stormwater Discharges from High Volume Hydraulic Fracturing Operations is permitted under any conditions.

“In accordance with the SGEIS, HVHF operations are prohibited as follows:

- in New York City and Syracuse Watersheds
- on primary aquifers
- on certain state lands
- within 2,000 feet of public drinking water supplies
- in floodplains
- within 500 feet of private water wells unless waived by the landowner.”

This prohibition means that HVHF operations in the above areas are not able to obtain coverage under the HVHF General Permit or an individual SPDES permit. (See http://www.dec.ny.gov/docs/water_pdf/hvhfgpfactsht.pdf p.2.)

The following sets forth the buffer and setback specifics in the SGEIS with “**Omissions**” and “**Stipulated Exceptions**” indicated in **BOLD**. (See <http://www.dec.ny.gov/energy/75370.html>.)

Surface distance allowed for drilling measured from the closest end of the well pad to water sources: 4000 ft. buffer area. Well pads for HVHF would be prohibited in NYC and Syracuse watersheds and within a 4,000 ft. buffer around those watersheds. Referenced: 1.8 pg. 21; 7.1.5, 6 pp. 36-9; 7 pp. 55-6.

Omission: No prohibition mentioned for horizontal drilling underneath; this is necessary because horizontal drilling from the well bore can extend for miles and toxic chemicals can migrate toward the surface.

Well pads for high-volume hydraulic fracturing would be prohibited within 2,000 feet of public water supply wells, river or stream intakes and reservoirs, natural lake, river or stream intakes or man-made impoundment (not for HVHF) as measured from the closest edge of the wellpad (**Exception: subject to reconsideration 3 years after issuance of the first permit for high-volume hydraulic fracturing; omissions: no prohibition for drilling in or under any of the foregoing; no prohibition for drilling in private water wells, natural lakes, rivers or streams, state-owned conservation areas**) 1.8 pg. 21; 7.1.11, p. 7-67, 73.

Omission: 1000 ft. corridor surrounding a water tunnel or aqueduct. Exception: Inside the buffer site specific SEQR finding is necessary. 7.1.10; p. 7-pp 68-69.

Well pads for HVHF would be prohibited within 500 feet of primary aquifers or private wells or domestic water supply springs unless waived by owner (**Primary Aquifer Exception: subject to reconsideration 2 years after issuance of the first permit for HVHF; omission: does not stipulate that horizontal drilling is prohibited underneath; no prohibition at all mentioned for principal aquifers as in Preliminary Draft**) 1.8, pg. 21, 7.1.11, p. 7-73,74.

Site-specific SEQRA review and SPDES individual permit (not general permit) required for HVHF operations sited within the following buffers (calculated from the edge of the well pad) (See http://www.dec.ny.gov/docs/water_pdf/hvhfgp.pdf p.9.)

HVHF operations where the top of the target fracture zone at any point along the entire proposed length of the wellbore is shallower than 2,000 feet below surface; and 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:

- 500 feet of a principal aquifer;
- 500 feet of a tributary to surface public drinking water supplies, i.e., perennial or intermittent streams, as described in 6 NYCRR Parts 800-910 (up from 150 ft in Preliminary Revised SGEIS 7/2011; omitted from same: storm drain, lake or pond)150 feet from storm drains, lakes, or ponds as described in 6 NYCRR Parts 800-910 (down from 500 ft. in Preliminary Revised SGEIS 7/2011);
- 100-foot requirement for Wetlands (down from 150-foot as in Preliminary Revised SGEIS 7/2011).

The New York City Watershed

The SGEIS provides a margin of safety for New York City's ("NYC") drinking water in its buffers and prohibited drilling areas. However, the SGEIS is inadequate in the following areas:

1. The buffer and prohibited drilling area distances from NYC's drinking water supplies are varied with exceptions and omissions. The distances should be determined by a broad-based, independent, scientific study on the impacts of fracking on our water unlike the unsubstantiated distances in the SGEIS.
2. According to The Hazen and Sawyer Final Assessment Report for NYC DEP http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/12_23_2009_final_assessment_report.pdf "D- 3 Mitigation of risks to drinking water quality and infrastructure integrity will require revision of current setback provisions to reflect the occurrence of laterally extensive subsurface faults, fractures, and brittle structures." This has yet to be done based on recent subsurface information.
3. The SGEIS should affirmatively prohibit horizontal drilling under NYC drinking water sources. Further, setback distances should be determined from the end of the horizontal well bore, (See Hazen and Sawyer.)

4. The buffer for the New York City water infrastructure of 1,000 ft. corridor surrounding a water tunnel or aqueduct with a site-specific SEQR finding within 1,000 ft. is inadequate and dangerous for NYC's drinking water supply. It is imperative the seven mile buffer from the end of the horizontal well bore recommended in The Hazen and Sawyer Final Assessment Report for NYC DEP Dec. 2009, be included to protect the adequate quantity and drinkability of New York City's drinking water and its fragile and aging water infrastructure. Similarly, there should be no site-specific SEQR finding permitted inside the buffer.
5. The buffer for NYC's water infrastructure has been eliminated from the SGEIS. It is imperative that the seven mile buffer from the end of the horizontal well bore recommended in The Hazen and Sawyer Final Assessment Report for NYC DEP, dated Dec. 2009, be included in the SGEIS to protect the adequate quantity and quality of NYC's drinking water and its fragile and aging water infrastructure. "No buffer" is unacceptable.
6. No independent, scientific study of the cumulative effects of HVHF on water has been performed to support the efficacy of the SGEIS. Since the toxic chemicals used in the extraction process and the resulting produced fluids cannot be filtered to safe levels prior to entry into NYC's water systems, a moratorium should be placed on HVHF until the EPA has completed its study on the effects of HVHF on water resources and the results of the study can be analyzed as to impact to determine whether regulations and certain enforcement can promise New Yorkers safe drinking water, using current technology. To fulfill its mission, DEC is duty bound to protect our State's finite potable water for generations to come.

Protection of Water Sources

Shallow groundwater wells are uniquely vulnerable to pollution by drilling operations. Drilling introduces methane into groundwater thereby rendering such sources susceptible to methane pollution. Methane infused water is not potable. In high enough concentrations it is flammable. The proposed gas well setback of 500 feet from a water well is not adequate to ensure the integrity of the well (See Sections 4.7 and 6.1.4.); rather, the setback should be the same distance as for the watershed. (See <http://www.scribd.com/doc/65079406/SGEIS-Water-Setbacks> (Northrup).)

The SGEIS has drawn on other states' HVHF experience, best management practices and regulations to determine setback distances and buffers. Most address surface setbacks because many of the accidents due to HVHF occur on the surface. However, subsurface setbacks need to be considered seriously, particularly over the long term.

Horizontal drilling under watersheds, public or private water supply wells, river or stream intakes, reservoirs, and water infrastructure should not be permitted under any circumstances. A contrary policy would disregard the fact that methane moves up through shale and sandstone, and produced HVHF fluids can similarly migrate as well. Further, DEC should reinstate the protection of NYC's water infrastructure as was the case in the SGEIS of 2009 and the Preliminary SGEIS issued in July, 2011. Failure to provide such protection demonstrates a lack

of regard for the geology of our state and the fragile (and ever degrading) condition of NYC's water infrastructure, which is responsible for holding and protecting drinking water for nine million people.

Principal aquifers, the aquifers of tomorrow, are as important as the aquifers we use today and as important as our surface public and private drinking water supplies. When considering the geology of the state in relation to the process of HVHF and the amount of drilling fluids left in the shale with each frack, a conservative approach based upon proven science must be New York's standard so as to ensure a long-term margin of safety from the chemicals used and produced in HVHF. Naturally-occurring fractures and fissures across or near abandoned wells, new wells and water infrastructure allow the opportunity for drilling waste and produced fluids containing toxic and hazardous chemicals to move horizontally and vertically upwards toward aquifers and groundwater sources, depending upon the topography at issue. An attempt to refute the possibility of upward movement appears in the NYSERDA Agreement No. 9679 ICF International p. 125-136 of the Appendix of the SGEIS. (See http://www.dec.ny.gov/docs/materials_minerals_pdf/rdsgeisapp1140911.pdf.) However, the attempted refutation addresses neither the large amounts of fluids left in the shale nor the actual geology of the Marcellus Shale under NY State, with its fractures and fissures. The League recommends DEC review the following which draws exclusively from the Dec. 2009 Hazen and Sawyer Final Impact Assessment Report of Natural Gas Production in the New York City Water Supply done for the NYC Department of Environmental Protection relating to the city's water infrastructure. (See http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/12_23_2009_final_assessment_report.pdf p.28 -29.)

To truly protect our finite drinking water supply, the League recommends a moratorium on completion of the SGEIS and issuance of permits until 120 days after the EPA publishes findings from its study of the effect of hydraulic fracturing on water.

We note, in addition to the foregoing, the SGEIS omits to address setback requirements in a way that can fully satisfy residential mortgage and insurance underwriting, both of which seek to minimize risk. Further revisions to the SGEIS could lessen impacts to property value and reduce health risks. Amended setback requirements should be developed to address all phases of the surface drilling activity, including on-site feeder pipelines, water reservoirs, waste storage and compressor operations as well as the drilling activity itself. All these activities should be subject to setback requirements.

In addition, subsurface horizontal drilling activity, flowback routes and day-to-day pipeline operations and their proximity to residential structures is also critical. Current residential mortgage underwriting addresses distances from property structures to vertical (not horizontal) drilling and limits the analysis to distances to and from the well head (not necessarily incorporating other aspects of the drilling lifecycle). Federal secondary mortgage underwriting guidelines will benefit from further scientific study recommended above since consideration of the recent combination of hydraulic fracturing with horizontal drilling and all aspects the drilling lifecycle would facilitate incorporation of science-based conclusions on these recently combined practices into underwriting standards that impact a \$6.7 trillion secondary mortgage market. While this is not a DEC function, *per se*, it is in the economic interest of the state and of local

governmental units to preserve the residential properties (and assessed value) on which the drilling activity is to take place.

Socio-Economic Assessment

The League is aware that DEC will perform a follow-up analysis of the socio-economic assessment through E & E, a consulting firm which previously performed this function. As mentioned above, the League recommends that the expanded review and analysis of the socio-economic costs of the drilling life-cycle be performed by a group of scientists, sociologists and economists with no links to the industry, whose work will be subject to peer review.

A few of the shortcomings of the current socio-economic analysis presented in the SGEIS and the study by E & E are as follows:

1. Drilling and mining activities result in a boom/bust economy. The DEC must look at this problem carefully and analyze any economic gains within this context, taking seriously the long-term negative impacts drilling activities are likely to have on local communities, businesses, and individuals. Section 6.8.3.3 of the SGEIS trivializes the short-term and long-term implications of the boom-bust cycles characteristic of industries exploiting natural resources. For sound evidence of the net-negative economic consequences of such industries, see *Booms and Busts: The Impact of West Virginia's Energy Economy* (West Virginia Center on Budget & Policy) <http://www.wvpolicy.org/downloads/BoomsBusts072111.pdf>. and *Fossil Fuel Extraction as a County Economic Development Strategy: Are Energy-focusing Counties Benefiting?* (Headwaters Economics, Bozeman, Montana) http://headwaterseconomics.org/pubs/energy/HeadwatersEconomics_EnergyFocusing.pdf.
2. The DEC has not significantly considered the need to control the pace and scale of any drilling that occurs. A study of the literature makes it clear that the pace and scale of drilling and production is critical if communities are going to be able to absorb the new activity, monitor problems, and survive the adverse effects of the boom-bust cycle. The DEC, in section 9.2, dismisses the option of phased permitting with no mention of the benefits such phasing would bring to stressed communities.
3. Sections 2.4.11 and 6.8 of the SGEIS, as well as the supplementary study of the economic and sociological impacts of drilling on which they are based, are seriously inadequate. They present an inflated quantitative analysis of the potential benefits of drilling and only briefly mention, with no quantitative estimates, the negative implications.
4. The central assumption underlying the economic analysis of the estimated quantity of recoverable gas, is never explicitly stated. Positive benefits to the work force, for example, are calculated in detail and sometimes exaggerated, including the expected lifetime of individual wells; some costs and negative impacts are noted but not evaluated; negative sociological impacts such as changes in character of local communities are not

addressed. We do not know precisely what E&E was commissioned to do, but the analysis is not one on which key decisions should be based.

5. The total numbers used for recoverable amounts of gas are not given up front in the E&E report as they should be in any serious piece of research. However they may be estimated from the data given in the E&E report. (See *Economic Assessment Report by Ecology and Environment Inc. Overstates Total Recoverable Reserves* by Advocates for Springfield <http://www.scribd.com/doc/68519448/NY-Gas-Reserve-Estimates>.) Such an estimate suggests that the amount of recoverable Marcellus shale gas in NYS assumed by the E&E analysis is five times the recent estimate of the USGS. A meaningful assessment must start with a discussion of these estimates and of their basis and reliability.
6. The assumed lifetime of each well (page 4-7 of the E&E report) is not based on a careful study of actual experience in other regions in which HVHF has been performed. It assumes that each well will be productive for 30 years, whereas, according to a public briefing given in Albany by Cornell professor Susan Christopherson on Dec. 13, 2010, annual production from a shale well declines by about 50% in the first year and gas production that is economically recoverable is uncertain beyond five years. (See *The Future of Natural Gas, MIT Energy Initiative, Interim Report (2010)* at <http://web.mit.edu/mitei/research/studies/report-natural-gas.pdf>.)
7. The calculation of the number of jobs that may be created uses specific models and multipliers. However the models used and the employment multipliers applied to the activity have been seriously questioned by economists such as Janette Barth (See *North American Shale Gas Plays: More Unanswered Questions*) and Susan Christopherson, in a year-long study she led which can be found at http://www.greenchoices.cornell.edu/downloads/development/marcellus/Marcellus_CaR_DL.pdf.
8. The number of jobs likely to be created for NYS workers is highly inflated. First, the analysis by E&E mentions on page 4-61 that initially 77% of the workers will be migrant workers from out of state. But it does not discuss this fact when stating the number of jobs to be created and does not take this into account in the job numbers it claims. Second, the inflation in the estimates of economically recoverable gas and the lifetime of each well leads to further overstatement of the number of jobs likely to be created.
9. The E&E report does not discuss or take into account in any calculations the amount of revenue from the gas extraction that will leave the state. James Northrup, who served on the Governor of Texas' Energy Advisory Council and is a partner and investor in oil and gas projects, has estimated that 80% of the revenue will leave NYS and so not be taxed or spent here. Neglect of attention paid to the export of economic benefits to the home states of transient workers and gas company corporate offices leads to a gross exaggeration of the perceived benefits to New York State and its local regions.
10. The costs to local businesses and farms have been noted but no quantitative estimate has been made. These costs include the permanent or at least long- term reduction of the

economic benefits from agriculture, tourism, wineries, breweries, and a number of other businesses that are at risk. Without such analysis it becomes meaningless to talk of the net benefits of gas drilling because there is no estimate of the cost side.

11. Other costs that have been ignored in the SGEIS and the report by E&E are costs to local municipalities. These include increased demands on infrastructure, health⁴ and social services, the need to train emergency responders to deal with new problems and the need to add to these staffs, and the impacts on the school systems that will occur if migrant workers bring their families to town short term.
12. The study done by E&E claims that there will be a significant long-term growth of the population in the region. This ignores historical studies done by Susan Christopherson (see work cited above) and others that show a lower level of population growth in areas in which vertical drilling has occurred within NYS as compared to neighboring counties in which it has not occurred. Also important is the potential change in character of the communities over or near the Marcellus Shale, the potential consequences of departure of current residents, and the likely decrease in the numbers of new highly educated and thus mobile residents associated with the universities or retirement communities, who would find the heavy industrial environment unattractive and would have the option of locating elsewhere.

The League urges DEC to include in the socio-economic follow-up analysis a thorough review of the current extensive literature on this topic and a 10 day to 2 week stay by the lead consultant and assistant consultants in Bradford County, PA where they will live in the community (not in accommodations provided by the gas industry). This would enable consultants to experience the impacts of gas drilling, meet with the Bradford County administrators responsible for human services, and interview impacted families, school teachers and health care workers. Anything short of addressing actual experiences of like families similarly situated, just over the PA border, will fall short of addressing the issues New York can expect. The costs to community life and community preparedness in PA are real; and, if NY is not prepared, it will face, without the ability to meet, the same challenges.

Reports from PA, which require investigation and confirmation, indicate, for example, that the introduction of higher paid workers into this community has displaced low to moderate income families with young children previously living in rental housing (not subject to gas leases) and that displaced families, which once functioned as units, are reportedly now living apart, sleeping in cars, on couches and struggling to survive. Teen pregnancy is also reported to be on the rise, and children living this transient life without the former stability a family unit brings are requiring early intervention for emotional repercussions. E&E is asked to address how New York can be expected to meet the needs of its children if they are similarly impacted and how

⁴ Abandoned wells that exist in upstate New York from vertical drilling correlate to higher incidence of cancer in people living proximate to the wells (See Steingraber, et al letter dated November 16, 2011 to Governor Andrew Cuomo <http://psehealthyenergy.org/resources/view/198821>.) With tens of thousands of wells planned for future unconventional drilling, failure to eliminate the substances and practices causing the inherent risk will call upon New Yorkers to subsidize the drilling practices in the form of increased health care costs and job absence.

such children will be able to adjust in a school setting with so much disruption in their early lives. Community funding is finite, as are trained professionals to address increased need.

Likewise, destructive impacts of the continuous, fracking truck traffic can be expected to interfere with day-to-day travel, including the ability of case workers to reliably commute to serve the adversely impacted population referred to above, and the ability of emergency response to arrive to fight fires (See, *Fire Chiefs: Traffic Congestion is Delaying Emergency Response Times in Bradford County*, The Daily Review (Towanda PA) January 26, 2011.) E&E is asked to coordinate with New York DOT to consider, drawing upon the experience of transportation experts on PA, how New York can maintain social services and emergency response personnel at numbers sufficient to respond to escalating need, create and/or maintain a road system that serves the day-to-day and emergency needs of communities expected to accommodate heavy truck traffic and how PA is collecting the funds to finance the increased need for these services and infrastructure.

The following issues were not addressed in the SGEIS but bear directly on socio-economic impacts, including the long-term preservation of New York's real property tax base.

Analysis of Allocation of Risk for Drilling Activity

The risk management aspect of gas drilling must be included in the socio-economic analysis, including identifying and quantifying risks and who pays for the risks. New York government must demonstrate to taxpayers that the costs and expenses associated with drilling activity and the adverse impacts that result, are paid in full by the gas industry. This should not be a taxpayer responsibility either directly or indirectly, whether by public payment for adverse incidents or through hidden subsidies, such as will result in uncapped health care costs resulting from anything less than full disclosure of the fracking chemicals and industry responsibility for the damage they may cause. The DEC is asked to assess the following facts.

Gas company public disclosure documents filed with the S.E.C. list the risks of gas drilling to include: well blow-outs, craterings, explosions, pipe failures, uncontrollable flows of natural gas or well fluid and other environmental hazards. The same disclosure documents state there is inherent risk of incurring significant environmental costs and liabilities due to generation, handling and disposal of materials including the methane gas and the fracking waste. The disclosure documents state these significant liabilities are not fully insured. Climate change adds complexity by ushering in more frequent hurricanes and tropical storms, such as Hurricane Irene. Gas companies are not fully insured for environmental degradation and other physical damage caused by their operations and precipitated by natural disasters such as hurricanes and tropical storms. The insurance that is available is becoming more expensive and covers less. There is no indication the gas companies have established cash reserves to pay for remediation expenses their insurance does not cover. (See, *Homeowners and Gas Drilling Leases: Boon or Bust?* by Elisabeth N. Radow, New York State Bar Association Journal, Nov./Dec. 2011 www.nysba.org.)

Taxpayers can be expected to absorb the costs attributable to remediation of adverse impacts that neither the gas company nor the homeowner cover.

As fee title holder to the residential property the homeowner is responsible for environmental impacts to the property if responsibility is not delegated to the gas company, even if the homeowner does not control the acts of the gas company or the quality of the work it performs. The pre-printed gas leases do not contain an insurance clause by which the gas company assumes responsibility for its actions or names the homeowner as an additional named insured on its insurance policy. The leases are typically silent regarding insurance and indemnification. Even assuming gas leases did provide for insurance coverage and indemnification, gas leases are often entered into by so-called shell entities or single purpose entities, which then assign leases to third parties without notice to homeowners. Lack of knowledge about who is coming onto ones private property to perform drilling and lack of control over the quality and location of the work performed or whom to pursue if damage occurs places an unacceptable burden on the homeowner. Drilling activity is not covered by homeowners insurance. Further, homeowners insurance often prohibits the type of activity contemplated by a gas lease, thereby putting the coverage it does provide in jeopardy and potentially shifting all losses to the homeowner, personally. To the extent a homeowner is unable to recover the costs and expenses arising out of damage from drilling activity from the gas company and is unable to personally fund the remediation expenses, this could impact a person's ability to remain in the home and the value of the home. It raises the further question of whether other tax payers will have to compensate for a resulting diminished tax base and increased demand to address the adverse impacts. (See Radow, cited above.)

Environmental Conservation Law Section 23-0901 states that a property owner forced into a spacing unit is not liable for damage arising out of the drilling activity; however, the statutory language needs to go further by affirmatively making the gas company financially responsible. Until the legislature can resolve this oversight by statute, the League recommends that all permits issued by DEC involving properties subject to compulsory integration should make the operator affirmatively responsible for any damage caused to all property owners in the spacing unit, even those not subject to a lease, but otherwise included through forced pooling. Further, to the extent a property owner terminates its lease with a gas company, that property owner should be exempt from thereafter being forced into the spacing unit through compulsory integration.

Recommendation: As first mentioned to DEC in its letter dated July 18, 2011, the League recommends the establishment of point-of-permitting funds to ensure the for-profit operations of the gas industry, and all adverse impacts arising out of the operations, are paid for in full by the industry. To this end with respect to municipalities, we recommend the establishment in each county through which trucks pass and in which services and natural resources are used, an up-front fund to cost-share, accommodate full replacement cost and full remediation, as applicable, and, when required, to pay for services, infrastructure upkeep and preservation of natural resources, for the duration of the drilling lifecycle. With respect to private property owners whose property is subject to drilling activity, DEC should likewise establish a point-of permitting fund for each spacing unit, the proceeds of which will be available for the exclusive use of the affected property owners who experience health impacts or damage to or destruction of their property. Given the inherently dangerous nature of the drilling activity (as set forth in gas company S.E.C. disclosure documents) it follows that the burden of proof regarding cause of damage should be on gas companies, and the permitting process should include appropriate levels of insurance and indemnification for environmental and health costs. In addition to providing basic protection for state citizens and taxpayers, DEC should have the authority to

preliminarily revoke all permits held by a company for failure to meet adequate safe operational standards. Such revocation would be subject to a subsequent hearing, but activity would cease pending resolution of the issue.

Gas Leases with Residential Mortgages, Property Value and Impact on Tax Base

The SGEIS refers to adverse impacts on resale value of residential properties subject to gas leases, with the resale value varying according to its proximity to the well pad. Comparisons were not made to similar properties under current drilling conditions thereby undermining the reliability of the brief analysis that was provided. Property comparisons should exclusively compare like properties currently involved in fracking such as Washington County and Bradford County, PA. Standard pre-printed gas leases signed in New York redistribute the typical attributes of homeownership from the homeowner to the gas company (including the right to establish undesignated surface operations, perpetual unfunded easements, and underground gas storage, to name a few). Gas leases also contain clauses that enable the gas company to encumber the property indefinitely, even if no drilling activity occurs. This uncharacteristic right is buttressed by General Obligations Law, Section 15-304, which enables the gas company to reinstate an expired lease. According to a November 2011 news report including interviews with upstate realtors, homes with gas leases are becoming harder to sell to families intending to live at the property because of the potential risks to health and complications with mortgage financing (See, *Cooperstown--Lease or no lease?* by Joe Mahoney, thedailystar.com, November 22, 2011.) To maintain the property value associated with homeownership, property rights under gas leases should be restored, wherever possible to include the unfettered right to construct on, mortgage and sell the property.

Gas Leases and Mortgages

The drilling activity and use of hazardous substances permitted by the gas leases is prohibited by standard mortgages. New York homeowners generally signed gas leases without obtaining lender consent. While this omission may be considered a technical mortgage default, it nevertheless entitles the lender to require repayment of the mortgage if the lender determines the risks from drilling will impair the value of the residential collateral. Further, in the event a homeowner cannot obtain or maintain homeowners insurance, this will be an outright mortgage default, which will leave a home owner vulnerable to foreclosure (See Radow, cited above.) (DEC can make reference to standard pre-printed leases on file with the Office of the Attorney General and standard residential mortgages available from the Federal Housing Finance Agency or Freddie Mac). Prior to commencement of permitting, DEC should coordinate with the State office of finance and insurance to establish that there is no inconsistency between the gas leases and mortgages that could lead to full-scale property loss due to foreclosure or un-insurability.

Underwriting guidelines for future mortgages require lending institutions to evaluate the rights and responsibilities set forth in agreements impacting any property on which they make a loan; this includes gas leases. This is not possible with anything less than the full lease, particularly since pre-printed gas leases signed in New York redistribute the attributes of homeownership to the gas company. Property owners who are subject to gas drilling through compulsory integration should be able to exempt themselves if their property is encumbered by a mortgage. Property owners whose properties are not subject to a mortgage but who want to maintain the flexibility to obtain a mortgage or sell their property to a purchaser who can obtain a mortgage

should be entitled to ensure the setback from all phases of the drilling activity (vertically and horizontally) will comport with secondary mortgage market underwriting guidelines, and this fact should be recorded in the county recorder's office. In the event a person cannot mortgage or sell a home and the stigma attached to potential water contamination attaches to the property, there is the potential to reduce the assessed value of the property, with a corresponding adverse impact on the tax base. It is therefore critical that DEC work collaboratively with the office of finance and insurance, the office of the Attorney General and the Comptroller's office to preserve the attributes of homeownership and the insurability and ability of homeowners to finance their residential property. To this end, the League has the following recommendations:

1. DEC should recommend to the State Senate and Assembly the equitable redrafting or repeal of General Obligations Law Section 15-304 which currently grants the gas companies a unilateral right to renew an expired gas lease. The indefinite duration of standard pre-printed gas leases as backed up by statute (unless drilling is actually in process), presents an uncharacteristic burden on the residential property owner, which requires prompt attention.
2. DEC should add to the permit application an ongoing requirement, throughout the drilling lifecycle, that entire gas leases (except royalty payments, which can be redacted) and all assignments of the gas leases must be recorded in the county recorder's office where the subject property is located. This will enable homeowners to confirm the consistency of lease terms originally agreed to and identify who is entering their property to perform the work. This will also enable lenders to evaluate the full lease and the identity of people performing heavy industrial work on the prospective borrower's residential collateral. Further, DEC should note in the public records if a property is subject to compulsory integration.
3. New York State should create a master database (compiled from the data established at the county recorder's offices) of all properties subject to a gas lease. Of those properties subject to a gas lease, it shall also note which of those properties is subject to a mortgage and which is subject to a drilling permit, along with the date of each. This information available at the state level will assist the Office of the Attorney General and state office of finance and insurance to monitor inconsistencies and enable the Federal Housing Finance Agency to better perform its oversight role to provide a stable secondary mortgage market. It will also provide information to health care providers and local governmental units to better analyze the impact of drilling on health and financial well-being.
4. To maintain the value attributable to homeownership, the corresponding assessed value of the residential property and the resulting tax base, at the point-of-permitting, those leases with clauses granting to the gas company the right to undesignated surface operations, including perpetual unfunded easements and the right to store gas, should be amended to eliminate these overreaching provisions. Any property in a spacing unit on which surface operations will be established will need to include versions of these clauses; however, to protect the long-term value (and assessed value) of these properties, a perimeter survey should be performed (at the expense of the industry) with the input of the homeowner to locate the surface and subsurface operations, at minimal interruption to the homeowner's use of the surface, including time-limited, fully funded, easements,

which map will be filed with DEC and recorded in the county's public records. This map will be used a basis for determining at the end of the drilling lifecycle that the subject property has been restored to the condition which existed prior to the commencement of drilling.

DEC has the option to withhold permitting in municipalities which have passed a ban on drilling activity. The League supports this option.

The League thanks the DEC for its continued efforts to fulfill its mission and serve the needs of New Yorkers. We appreciate this opportunity to comment on the SGEIS and are available to answer any questions you have regarding the comments provided here.

Sincerely,

BETSEY B. SWAN
President
League of Women Voters of New York State