January 11, 2013 – draft for review

Attn: Draft HVHF Regulations Comments
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-6510

Reference: Proposed 6 NYCRR Parts 52, 190, 550-556, and 750 Regulations

Dear Commissioner Martens:

The Tompkins County Water Resources Council strongly objects to finalizing the revised proposed regulations for gas drilling using high volume hydraulic fracturing (HVHF) due to the sequencing of the release of the revised regulations in relation to the finalizing the Supplemental Generic Environmental Impact Statement (SGEIS), the short comment period, and inadequate responsiveness of the New York State Department of Environmental Conservation (NYSDEC) to previous comments by the Tompkins County Water Resources Commission to specific provisions of the regulations. Numerous unresolved issues – many identified in the *Assessment of Public Comment* – need to be settled prior to finalizing these important regulations. These issues and specific comments on the proposed regulations are detailed below.

GENERAL COMMENTS AND UNRESOLVED ISSUES

1. **INADEQUATE PUBLIC COMMENT PERIOD –** The documents released for public review by the NYSDEC number 338 pages including the revised regulations; a summary and assessment of public comments; and additional analyses and impact statements. The 30-day comment period occurred during a period of major religious and National holidays which severely hindered the ability of the Tompkins County Water Resources Council (WRC) to thoroughly and thoughtfully review the released documents and draft, approve, and issue comments. The WRC review was further hindered by the lack of a final *Supplemental Generic Environmental Impact Statement (SGEIS) on the Oil, Gas, and Solution Mining Regulatory Program: Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs*. Moreover, the revised regulations were not released in a "track changes" format making review of the current proposed regulations versus the proposed regulations issued in 2011 unnecessarily difficult. The review of the 2011 proposed regulations was also limited by the concurrent comment periods for the SGEIS and the proposed regulations. The public should be allotted a substantially longer comment period and the final SGEIS should be released before these significant regulations are finalized.

2. **COMPLETE HEALTH IMPACT REVIEW FIRST** - Public Health Commissioner Dr. Shah is providing a review, in consultation with outside experts, of whether NYSDEC has adequately addressed potential impacts to public health. The review of outside experts for the New York State Department of Health of the draft SGEIS will not be completed until after the end of the 30-day comment period on the regulations. The release of the proposed final regulations with the 30-day comment period eliminates the possibility of incorporating

the results of the independent review of potential impacts to public health in the formation of the regulations as presented for public review. As stated on the NYSDEC website concerning the proposed regulations *"If DEC decides that the process can be done safely, these regulations would be adjusted in accordance with the health and safety requirements and issues addressed in the Supplemental Generic Environmental Impact Statement."* Thus, we cannot understand why the NYSDEC chose to issue these proposed regulations for public comment before the health impact review and SGEIS are finalized.

3. **NYSDEC RESOURCES -** The Regulatory Impact Statement (RIS) recognizes that implementation of the proposed rules will require NYSDEC to incur additional costs associated with permitting, compliance monitoring and enforcement. The regulations should not be finalized until the NYS Legislature has identified the appropriate resources for NYSDEC and other affected agencies and a procedure is established for obtaining them.

4. **GOVERNMENTAL COSTS –** The RIS also notes that *"The actual costs that may be incurred by the Department and other state agencies cannot be currently estimated, given a lack of necessary information."* Information has been submitted to the High-Volume Hydraulic Fracturing (HVHF) Advisory Panel and/or NYSDEC concerning resources that should be included in the RIS that may negate this conclusion. The work of the HVHF Advisory Panel should be completed before the RIS is completed and final regulations issued.

5. **LOCAL GOVERNMENT MANDATES –** The RIS also states "*The rules would require well operators to test private residential wells within 1,000 feet of a well pad's location, or 2,000 feet in some circumstances. County health departments may need to respond to issues with these residential water wells that may arise as a result of testing. Those costs will be compliance driven and cannot be quantified at this time."* Using information available from Pennsylvania, the HVHF Advisory Panel, and other sources (including local health departments), these costs can and should be quantified and resources allocated before the regulations are finalized. We strongly support the water well testing requirements in the regulations; however, local health departments may experience a significant increase in work load due to these requirements and other gas-drilling related complaints and impacts, essentially creating an unfunded mandate, funding for which needs to be addressed. Additionally, as the regulations are currently written, local notification is only provided to the emergency management office. The result is that the local emergency management office will need to expend resources for coordination with other interested local agencies and municipalities. In the absence of such coordination, these entities will need to expend resources in order to be current on HVHF activities that may be of concern to them.

6. **REVENUE DELAYS -** The RIS further states *"It is projected that HVHF activities would result in a substantial increase in economic activity in the affected areas and also result in a substantial increase in tax revenues to the state and to localities. These revenues are expected to offset local government costs that may result from HVHF activities."* These revenue streams (such as ad valorem taxes) are not expected to fully cover the costs to local governments and will not be available during the early stages of gas development when local governments may be facing their highest need for resources. Additionally, these revenues are

only available in counties where HVHF drilling takes place, not in adjacent or other counties that might also be affected.

7. **RURAL FLEXIBILITY ANALYSIS –** The State Administrative Procedure Act (SAPA) requires that agencies proposing rules should assess the impact of the rules on rural areas and local governments. The Department prepared a Regulatory Flexibility Analysis for Small Business and Local Governments (RFA) that contains several inaccurate statements including: *"… the Department does not expect public or private sector interests in rural areas to be adversely affected by the proposed changes to the Department's existing oil and gas regulations"*

   "Public entities will incur minimal costs under this revised proposal as the public sector is not the focus of the proposed revised rules."

   "There should be no economic or technological feasibility issues created by the proposed revised rules."

Local governments are very concerned about significant direct and/or indirect impacts and associated costs. In contrast to the statements in the RFA, NYSDEC Commissioner Martens appointed a HVHF Advisory Panel charged with *"developing recommendations to avoid and mitigate impacts to local governments and communities"* and *"evaluating the current fee structure and other revenue streams to fund government oversight and infrastructure related to high-volume hydraulic fracturing*." The work of this Panel should be completed and its results evaluated and included as appropriate in the RFA before the regulations are finalized.

We object to NYSDEC issuing final HVHF regulations with incomplete information on impacts to local governments. Additionally, before regulations are issued, NYS must develop revenue streams from gas extraction to pay for the additional costs to both State and local governments, at the time they are incurred, through a blend of permit fees, severance taxes collected by the State, and ad valorem property taxes collected by local governments. Theses funds are needed to adequately protect human health and environmental resources in NYS, both in counties directly impacted by HVHF as well as adjacent locations.

8. **DRAFT SGEIS –** Although the proposed final regulations have been released, the SGEIS has not been revised since its release in 2011 and remains in draft form. The regulations should be based on the final SGEIS, not a draft version. The *Assessment of Public Comment* contains numerous references to the *draft* SGEIS. [See Comments/Responses 3682 (references Chapter 8); 7799/3789/6095/6098/and 6104 (references the EAF Addendum in Appendix 6); 2865 (references *changes to* the EAF Addendum); 6370 (references the pre-fracturing checklist); 3779 *("Mitigation measures contained in the Final SGEIS will be required and enforced as permit conditions. …"*); 3789/3819/2453 and 6163 (references Appendix 10, Proposed Supplementary Permit Conditions for High-Volume Hydraulic Fracturing); 3819 (references Section 6.1.6.2, Subsurface Pathways); 3842 (*"SEQRA determinations …. will be formalized in a Findings Statement that will be issued after the SGEIS is finalized.");* 6137 and 2453 (references Chapter 7); and 3755/3851 and 4405.]

On November 13th, NYSDEC Commissioner Joe Martens, Deputy Commissioner Gene Leff, and Bob Chinerey of the NYS Department of Health met with representatives of Elected Officials to Protect New York (EOPNY). According to the EOPNY letter to Governor Cuomo, Commissioner Martens, and Commissioner Shah dated December 3, 2012, during the meeting Commissioner Martens stated that there have been substantial changes to and expansions of the SGEIS, and that the public comments on the first two drafts of the SGEIS raised important issues and led to improvements in their understanding and in the document. Under the State Administrative Procedures Act, the public must have an opportunity to see and weigh in on such significant changes. Since the regulations are based on the SGEIS and substantial changes have been made to the draft, the regulations should not be finalized before the SGEIS.

SPECIFIC COMMENTS

Part 552, Permits to Drill, Deepen, Plug Back or Convert Wells

1. The regulations should state that all plat maps submitted with an application to drill, deepen, plug back or convert a well should show all water resource and seismic features within 2,640 feet of the well pad at the same scale. Water resource and seismic features including private and public water supply wells, streams, wetlands, reservoirs, springs, abandoned gas wells and seismic features within 2,640 feet of a proposed well pad must be shown on a plat map at a scale of 1:2400. Although the NYSDEC response to this comment states that the EAF would require an applicant to provide scaled distances from the proposed surface location of the well and the closest edge of the proposed well pad to these features if they are within 2,640 feet, since the SGEIS is not finalized, the regulations should include this requirement so it is clear to the applicant and the public that all important water resource and seismic features are included on a plat map submitted with an application and that these features are shown in one place.

Part 553.2 Surface Restrictions

We appreciate that the NYSDEC added the 500 foot setback from inhabited dwellings or places of assembly in Section 560.4. This prohibition should also be included in Section 553.2. Section 553.2 currently allows a well within 150 feet of any public building or place of assembly.

Part 560.3 Application Requirements

1. We disagree with the revised application requirement for only including the scaled distance for surface water bodies and aquifers within 500 feet of a proposed well pad. The revised regulations decrease the requirements for including scaled distance from the proposed surface location of the well and the closest edge of the proposed well pad to any primary or principal aquifer boundary, perennial or intermittent stream, wetland, storm drain, lake, or pond, or any surface water body that is tributary to a public water supply from 660 feet to 500 feet. This distance should be increased to 2,640 feet, the same as for private water supply wells and reservoirs. All water resources within 2.640 feet of a well

pad must be shown on all application materials to facilitate a thorough environmental review and protection of resources.

2. We disagree with the NYSDEC response concerning the necessity of mapping faults in the vicinity of proposed wells. The application requirements of 260.3(b) should include the requirement to include the scaled distance to any mapped fault within 2,640 feet of the proposed well or well pad.

   The map in the draft SGEIS purporting to show faults in NY ("Mapped Geologic Faults in New York State", Figure 4.13) grossly under represents the number and extent of faults in central NY. A few notable missing faults include the Retsof, the Leroy, the Cayuga Lake, the Seneca Lake, the Cortland-Ithaca, the Cayuta Creek, Catatonk Creek, the W. Danby faults, and the West Valley faults. This map is outdated (based on mostly pre-1977 gas well and some seismic data, in which the distribution of data was unevenly spread across the southern tier) and does not include many publications that have mapped additional faults. The pre-1977 data that were used in the SGEIS is concentrated in clumps in relatively small areas (such as in Genesee and Wyoming Counties) and there were little data in large parts in central NY (such as in most parts of Tompkins, Cortland, Tioga, and Broome Counties). Additional faults not shown on Figure 4.13 include:

   - The Retsof fault mapped by Jacobi (1969)
   - Seneca Lake fault discovered by Jacobi and Dellwig (1974). The fault (strike of N50 W) can be projected southward along the west shore of Seneca Lake and extending from the Himrod mine in the north to Watkins Glen brine field (and continuing southward, the fault trace coincides with a landsat lineament mapped by Isachsen and McKendree (1977). (
   - Faults in central New York identified by Stone & Webster in geologic and hydrologic reports (1978a, 1978b, and 1979) which evaluated the suitability of burying high-level radioactive waste in the Salina Formation in central NY. The Stone & Webster reports also stated in the conclusions that "We believe that the evidence is sufficient at this time (1978) to conclude that the salt basin in New York is cut by strike-slip tear faults and other nearly vertical faults which represent potential conduits of groundwater circulation."

   At the Watkins Glen salt brine field, Jacobi and Dellwig (1974) reported that while hydraulic fracturing was being conducted in one of the wells at a depth of 970 meters (3,180 ft), a flow of brine developed at land surface about .7 kilometer (0.4 mi) to the north probably as a result of the movement of the brine along a strike-slip fault. The strike-slip fault was mapped by Stone & Webber (1978a, 1978b, and 1979) and by Murphy (1981). The fault (strike of N50 W) can be projected southward along the west shore of Seneca Lake and extending from the Himrod mine in the north to Watkins Glen brine field (and continuing southward, the fault trace coincides with a landsat lineament mapped by Isachsen and McKendree (1977). Thus, we disagree with the NYSDEC response to Comment 3819 "*See Section 6.1.6.2, Subsurface Pathways in the rdSGEIS, which describes the specific conditions and analytical results supporting the conclusion that hydraulic fracturing does not present a reasonably foreseeable risk of significant adverse environmental impacts to potential freshwater aquifers, including via migration*

through faults" . Because of the prevalence of faults in Central New York, and the potential adverse environmental impacts as a result of brine movement along a strike slip fault, faults within 2640 feet of the proposed well bore and the horizontal extension of the well should be shown on a map at the scale of 1:2400. Using the approach taken for protecting water resources, applicants need to be aware of the location of faults near potential well sites so adequate precautions can be taken prior to fracking.

Part 560.4 Setbacks

1. We respectfully disagree with the NYSDEC that the prohibitions/restrictions found in the regulations provide adequate protections for the public, drinking water supplies, and the environment. While 560.4 (a) includes a 500 foot setback from water wells and that there be no well pad within a floodplain, no other surface water bodies (streams or lakes) or wetlands are protected by 560.4. Adequate setbacks (at least 500 feet) from these critical water resources must be included in the regulations to protect these sensitive resources.

2. Additional setbacks should be added to floodplains because floodplain maps are outdated. Climate change impacts to precipitation show that storms are flashy and the 100-yr floodplain is not sufficient to keep infrastructure safe from flooding impacts.

3. As stated above in our comment concerning 560.3, we disagree with the NYSDEC Response to Comment 3819"…*supporting the conclusion that hydraulic fracturing does not present a reasonably foreseeable risk of significant adverse environmental impacts to potential freshwater aquifers, including via migration through faults.* As evidenced by the brine flow caused by hydraulic fracturing at the Watkins Glen salt brine field, faults **do** pose a reasonable foreseeable risk of significant adverse environmental impacts. Thus, wells should not be permitted to be drilled within 2500 feet of a mapped fault or FID.

Part 560.5 Testing, Recordkeeping and Reporting Requirements:

1. Section 560.5(b) should include the requirement that the notification to the relevant county emergency management office of the activities described in this section be provided at least 3 days prior to those activities.

2. We are pleased to see that changes were made to section 560.5(d) to expand testing of wells prior to site disturbance for a new pad or well to include domestic supply springs and water wells that are used to supply water for livestock or crops, specify which parameters would be tested in samples from residential water wells and springs, and to sample and test residential water wells and springs after the well reaches the total measured depth, and to report any significant deviations from baseline testing to the Department within five business days of determining such deviations. We were also pleased to see that the revisions include requiring submittal of the results to the NYSDOH. However, Section 560.3(d) should also include the requirement to submit analytical results to the local County Health Department. The analytical requirements should also include arsenic, strontium and turbidity because these parameters have important health concerns associated with them. This section should also include the

requirement that sampling continue at a minimum number of selected wells at least annually until the gas well is decommissioned.

3. We are also pleased that the owner must identify any deviations sampling results, strengthening the former complaint-based system.

4. Water quality monitoring should focus on monitoring the groundwater resource, not just existing drinking water wells and springs. Water-supply wells and springs should not be the sole means of determining if groundwater contamination has occurred near a Marcellus Shale gas well due to the unknown or varying construction, operation, and availability of these wells, and the possibility that there may be no private wells or springs within 2,000 feet of the proposed well pad. Natural groundwater quality in the aquifers overlying the Marcellus and Utica play areas is highly variable. Concentrations of parameters such as chlorides and radioisotopes vary by two orders of magnitude in water sampled from water wells. With such natural variability, documentation of water-quality impacts from gas drilling and hydraulic fracturing would be extremely difficult if baseline data do not exist. As in environmental regulations relating to landfills (360-2.11), the permit should require the applicant to install and monitor groundwater wells to detect groundwater contamination before it reaches individual or public supply wells. The results of the recent Duke study (Osborn, et. al., 2011) found evidence that methane concentrations increased in proximity to the nearest gas wells and detailed analysis of the methane indicated it came from deep earth deposits rather than shallow biogenic deposits. Thus, the risk of methane migration is a real potential threat to wells near gas drilling sites, and migration of methane should be detected using monitoring wells before it reaches a private water supply well. We disagree with the response of the NYSDEC to our previous comment (Response 7003) requesting that the regulations require groundwater monitoring wells that "*The revised regulations at 6 NYCRR 750-3 state that the Department may require the "installation of upgradient and downgradient monitoring wells and a monitoring program with periodic monitoring for chemical constituents present, as well as other parameters that may be present in the HVHF wastewater."* It is our opinion that the regulations should require installing at least three monitoring wells around each well pad (two downgradient and one upgradient) and that these wells should be used to determine the direction of groundwater flow in the vicinity of the well pad and sampled and analyzed at the same frequency as the private water supply wells.

5. Considering the volume of environmental and public health data that will be generated by HVHF gas drilling, it is essential that NYSDEC or NYSDOH develop and manage comprehensive databases in order to facilitate effective, comprehensive oversight and public protection during gas drilling. A program must be developed for electronic sharing of monitoring data and must be shared with local health departments as they will be the agency first contacted if any potential contamination is detected.

Part 560.6 Well Construction and Operations

1. Prior to performing hydraulic fracturing operations, the operator should be required to perform a down hole 3-D seismic survey that covers the full extent of the planned horizontal borehole. A record of the 3-D seismic test must be maintained on-site by the

operator and be available to the NYSDEC upon request. The Department's response to this previous comment that a 3-D seismic survey will only be required prior to hydraulic fracturing operations when the proposed objective formation is less than 3000' true vertical depth does not reflect scientific facts. As previously noted, Jacobi and Dellwig (1974) reported that while hydraulic fracturing a deep well, a flow of brine developed at land surface about .7 kilometer (0.4 mi) from the well.

2. Revisions to Section 560.6(c) which raise the amount of allowable pressure loss to 10% over 30 minutes during the pre-testing of the well prior to inducing hydraulic fracturing fluid allows the potential for escape of hydraulic fracturing fluids into fractures during hydraulic fracturing. The previous allowable pressure loss of 5% should be maintained in the regulations.

9. **560.7 Waste Management and Reclamation -** We are pleased to see section 560.7(i) specify the radiological analysis for flowback water and soils adjacent to brine tanks, (radiological analyses of flowback water and production brine must include analysis for combined radium (Ra-226 and Ra-228) and other analytes as directed by the department and for soil samples, analyses must at a minimum include gamma spectroscopy for all naturally occurring gamma emitters including Ra-226 and Ra-228 (as determined from the presence of their decay products)).

10. **560.7 Waste Management and Reclamation -** We also approve of the addition of section 560.7(k) requiring radiological surveys of well head, piping, and flowback water and production brine tanks.

We have serious concerns about the process being used by the NYSDEC to devise regulations that adequately protect the public health from potential adverse environmental impacts from HVHF, the ability of the public to comment on these regulations, and the ability of the State to provide adequate funding for the oversight of HVHF activities. To reiterate our core concerns about the release of revised proposed HVHF regulations, 1) the review time allowed by the NYSDEC is totally inadequate for a meaningful, in-depth review of these important regulations, 2) the NYSDEC has released revised regulations prior to completion of the health review and finalization of the SGEIS, and 3) the regulations should not be finalized until the NYS Legislature has identified the appropriate resources for NYSDEC and other affected agencies and a procedure is established for obtaining the needed resources through a blend of permit fees, severance taxes collected by the State, and ad valorem property taxes collected by local governments.

Sincerely,

Frank Proto, Chairman
Tompkins County Water Resources Council

Cc: