

rdSGEIS Comments
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Section 2.2 Public Need and Benefit

Data taken from Considine and Broome County studies is out of date and only considers positive impacts. The positive impacts are inflated because new hires are equated with new jobs. New jobs in the exploratory stages of development are unlikely to go to NYS residents and have much less of a benefit to the state. The amount of recoverable hydrocarbons listed is not consistent with current estimates nor is the estimated life of a Marcellus well consistent with current estimates. In order to be taken seriously, the SGEIS should consider the full economic impact of drilling and newer data on potential recovery. The scenario is likely to be less positive if done correctly. As noted in the SGEIS, this is even before one considers the economic impacts of environmental degradation.

Section 2.4.3.1 Federal

The enforcement of both primary and secondary MCLs is a good step. However, many of the chemicals used in the hydraulic fracturing process and that are found in produced water do not have an MCL set by the EPA. The SGEIS should address how this will be handled. In terms of public health, it is simply not acceptable to allow toxic substances in drinking water simply because a scientifically-based MCL has not been set.

Section 2.4.8 Water Resources Replenishment

The Great Lakes-St. Lawrence River Basin has no evaluation processes and mitigation measures to ensure adequate replenishment of water resources. This is a serious concern that must be addressed.

Section 2.4.11.1 Employment, Economy, and Income, page 2-48, Table 2.13

These numbers are not very meaningful in determining the impact of the oil and gas industry. One cannot assess this without comparing negative impacts. Take for example the education sector of the economy. In Tompkins County, the economy is driven largely by higher education (Cornell University and Ithaca College). If this county is extensively developed for hydrocarbon gas extraction, the negative impact would be enormous. Students and faculty, the major drivers of the economy, live in the area by choice and have many other options and will leave. The massive negative impacts of drilling just in Tompkins County will offset any positive impacts in the education sector in the remainder of the state.

Section 2.4.11.4 Government Revenues and Expenditures

It would have been reasonable to point out in this section that New York has no severance tax on hydrocarbon gas extraction. The sources of revenue cited go to the general funds of various levels of government. Without more funding and staff, the DEC will not be able to regulate this industry. Furthermore, local governments will

not be able to maintain roads and emergency services. A severance tax with revenue going to support regulation and local governments is the only possible solution. This is the case in almost every other gas producing state (with the exception of Pennsylvania) and imposing such a tax has no negative consequences other than the decrease in campaign contributions from gas companies to state legislators that vote in favor of the tax. I do believe that the positives outweigh the negatives here.

Section 3.2.3.1 Hydraulic Fracturing Information (page 3-9)

The term “additive products” is not sufficiently specific and disclosing only to the DEC is of limited value. All chemicals (IUPAC names and CAS numbers) used in the hydraulic fracturing fluid at any concentration for each well should be disclosed to the property owners within a five mile radius, testing laboratories, local governments, and state agencies. MSDS sheets for each chemical and chemical mixture must accompany this disclosure. Following this procedure will allow prior water and air testing to be targeted to specific chemicals to be used in the drilling process for a specific well, as well as providing valuable information to first responders and hospital personnel in the case of an accident.

3.2.3.3 Distances (page 3-10)

Thermogenic methane has been detected at least 3000 feet from well heads (Osborn, et al. (2010) Proc. Natl. Acad. Sci. USA 108: 8172-6). Allowing wells within 600 feet of “primary or principal aquifer boundary, perennial or intermittent stream, wetland, storm drain, lake or pond” places these important resources in danger. This distance must be increased. Also the distance to “known public water supply reservoir, river or stream intake, public or private water well or domestic supply spring” should be increased to over 3000 feet.

3.2.3.9 Local Planning Documents (page 3-14)

The statement: “The applicant will also be required to identify whether the well pad is located in an area where the affected community has adopted a comprehensive plan or other local land use plan and whether the proposed action is inconsistent with such plan(s).” Since the siting of a well that is inconsistent with local zoning is clearly a violation of home rule, this should be grounds for denial of the permit. This is the case in all other industries (even other energy producing industries; e.g., wind farms and solar installations). There seems to be no rationale for the DEC to provide this massive subsidy to one source of energy and not another that is arguably better for the environment and economy.

3.2.3.10 Habitat Fragmentation (page 3-14)

These are important factors that should indeed be considered. But how will the DEC determine if the report submitted is accurate? This analysis should be done by an independent agency or company that is selected by the DEC but paid for by the company making the application for the permit.

3.2.4 Prohibited Locations (pages 3-14 and 3-15)

Item 6: It is not clear where the DEC derived the 500 feet prohibition from a private well

as it notes above there are concerns if a well is drilled within 2640 feet (page 3-10). The distance should be 3000 feet or more to prevent methane contamination (Osborn, et al. (2010) Proc. Natl. Acad. Sci. USA 108: 8172-6). Also, most private wells in NY are recharged by surface water. The contamination from drilling by other than methane is largely from surface spilling and overflow and intentional compromise of wastewater impoundments. A 500 feet buffer is woefully inadequate to protect water supplies. Also, allowing an uninformed landowner to allow drilling closer than 500 feet is not a responsible position for an agency that is dedicated to protecting the environment.

Section 3.2.5 Projects Requiring Site-Specific SEQRA Determinations of Significance (pages 3-15 and 16)

The setbacks are woefully inadequate for the reasons expressed in the comments to Section 3.2.4.

Section 4.7 Naturally-Occurring Methane in New York State (pages 4-38 and 39)

The Duke study is selectively quoted here and is somewhat of a misrepresentation. The conclusion of the study was that methane was found in water wells as a result of gas drilling. This was extensively analyzed in the Northeast. Perhaps the data from Pennsylvania are more relevant to this document as it shows that thermogenic methane can migrate to water wells as a result of drilling using horizontal hydraulic fracturing. The DEC does the public a disservice to ignore these data and attempt to suggest, contrary to clear documentation, that gas drilling does not result in methane contamination of water wells. The fact that biogenic methane preexists in some cases is without question (I have measured it in my own water well), but this does not explain the presence of increased thermogenic methane in drinking water after the commencement of drilling. This should be clearly recognized here to avoid the perception that the DEC is selectively including data for the purpose of downplaying the dangers of large-scale gas drilling in the state.

Section 5.4.3 Composition of fracturing fluids (page 5-63): While one can justify "trade secrets" as a legitimate business tool in most instances, when public health is involved, public health should trump the questionable withholding of vital information in the name of "trade secrets." In order to assess the effects of this process on public health, one needs to test for chemicals used in the fracturing process before, during and after drilling. If the specific chemicals for a specific well are not revealed before the well is drilled this is impossible, and it is impossible to definitively determine if water or air has been contaminated by the drilling process. If the DEC has the goal of inhibiting legitimate public health studies of hydraulic fracturing, then protecting "trade secrets" is a very effective tool. If, however, the DEC would like to assess the health impacts of hydraulic fracturing, the agency should clearly state that withholding information from the public and researchers is simply unacceptable and permits should not be issued without full disclosure. It also should be noted that MSDSs are NOT substitutes for full disclosures because some ingredients of mixtures are often listed as proprietary and not disclosed.

Section 5.4.3.1 Chemical Categories and Health Information (pages 5-74 to 75): I

would encourage Mr. Martens to reread these pages, because I can only believe that he must not have seen it before it was released. Note the following sentences or phrases:

(1) "Although exposure to fracturing additives would not occur absent a failure of operational controls such as an accident, a spill or other non-routine incident..." How can this possibly be known? In no area of the country where this process has been allowed has adequate testing been done. This has allowed the industry to blame any contamination, whether it was due to a "non-routine incident" or routine operation to preexisting contamination. There is no basis whatsoever for this statement and it should be removed.

(2) "Toxicity testing data is quite limited for some chemicals, and less is known about their potential adverse effects. In particular, there is little meaningful information one way or the other about the potential impact on human health of chronic low level exposures to many of these chemicals, as could occur if an aquifer were to be contaminated as the result of a spill or release that is undetected and/or unremediated." This statement is absolutely true and chilling. The DEC recognizes that it has little idea of to what potential dangers New York State citizens will be subjected. Perhaps we could be reassured in the subsequent sentences, but unfortunately, the DEC simply decides to dig a deeper hole for itself.

(3) "If an actual contamination event such as a spill were to occur, more specific assessment of health risks would require obtaining detailed information specific to the event such as the specific additives being used and site-specific information about exposure pathways and environmental contaminant levels." In all due respect to the good people that wrote this document, it would seem that the experience of the rest of the country is simply being ignored. In every instance that a spill or other routine or nonroutine water or air contamination has occurred, the industry has never accepted responsibility. They can do this because proper predrilling testing was not and could not be done because the fluids used were not fully disclosed.

(4) "Potential human health risks of a specific event would be assessed by comparison of case-specific data with existing drinking water standards or ambient air guidelines." I must apologize to the DEC staff, but this may be the most uninformed statement in the entire document. I say that only to give the DEC staff the benefit of the doubt. Surely, the DEC should know that EPA MCLs are not defined for many of the chemicals used (generic MCLs are inadequate for these purposes). There are simply NO scientifically-based drinking water or ambient air guidelines for many of these chemicals.

(5) "If needed, other chemical-specific health comparison values would be developed, based on a case-specific review of toxicity literature for the chemicals involved. A case-specific assessment would include information on how potential health effects might differ (both qualitatively and quantitatively) depending on the route of exposure." We will be very grateful to know that the DEC will do a Google search in the event that we become sick due to water or air contamination. Perhaps the DEC staff should take some time to do the Google search in advance of a major incident. When you do it, you will find that little is known about the long term and even short term effects of exposures to some of these chemicals and essentially nothing is known (with the exception of a few papers on mixtures of petroleum products) about exposure to mixtures of chemicals.

These chilling statements underscore the major flaw in this document. The public health impacts of this process are simply unknown. This includes the effects on human health, animal health (companion animal, production animals, wildlife), and food safety. The people and animals of this state will be laboratory animals in a giant experiment. If such a human health experiment were presented to the Institutional Review Board of Weill Cornell Medical School, there is little chance that it would be considered favorably. Yet, the DEC is proposing this experiment with absolutely no consideration of the potential consequences, and simply stating that if something happens, they will try to understand what happened. This is simply unacceptable to the people of this state and would be considered a criminal act if pursued by a medical researcher.

6.1.3.2 Hydraulic fracturing additives (page 6-17): “In NYS, the state drinking water standards (10NYCRR 5) apply to all public water supplies and set maximum contaminant levels (MCLs) for essentially all organic chemicals in public drinking water.” This is an incredibly misleading statement. Almost all of the additives have generic MCLs. While perhaps better than nothing, the generic MCLs have no real use in determining toxicity and are merely a statement that nothing is known. The department should recognize and readily admit that levels associated with the toxicity of these compounds and the enforcement of meaningful MCLs is largely nonexistent. Because these meaningless numbers will be used to assess toxicity and used to determine if water is safe to drink, one can only consider this an abrogation of the responsibility of the DEC to protect the citizens of New York.

6.5.1.2 Pollutants of Critical Concern in Unfiltered Drinking Water Supplies (page 6-48): “Given the topography of much of the NYC and Skaneateles Lake watersheds, many of the roadways are in immediate proximity to tributaries. Such proximity increases the risk that chemical and petroleum spills would not, or could not, be effectively intercepted before entering the drinking water supply.” The same could be said for all of the Finger Lakes region and most of people in that region drink unfiltered water. The DEC should recognize and admit that this is a political move that will place those outside of the NYC and Skaneateles watersheds at risk. Even in the cases where the drinking supply is filtered, it is no protection for chemical and petroleum spills. Why protect some of the state, while leaving the remainder, less affluent part of the state at risk?

6.1.6 Hydraulic Fracturing Procedure (page 6-52). “As summarized in Section 8.4.5, regulatory officials from 15 states have recently testified that groundwater contamination from the hydraulic fracturing procedure is not known to have occurred despite the procedure’s widespread use in many wells over several decades.” It is fairly clear that the regulatory officials are simply parroting the industry line that no groundwater contamination has been proven from the hydraulic fracturing procedure. This typically excludes the most common sources of groundwater contamination such as faulty cement jobs and surface impoundments. Whereas the industry and some regulatory officials use this line of reasoning, it is clearly a statement of no value whatsoever in assessing the safety of this procedure, and it is unclear why the DEC would place such a misleading portrayal of the facts in this document.

6.1.6.1 Wellbore Failure (page 6-53). “Hydraulic fracturing is not known to cause wellbore failure in properly constructed wells.” Again, this is not helpful information and is misleading. It is akin to saying that the industry has a perfect safety record except in those cases where it has contaminated air and water and has experienced worker injury and death. The more useful information is how often failure has occurred, and the DEC should recognize that no amount of regulation will prevent at least some percentage of failure during the drilling and fracturing process and the years that the well will be in operation.

6.1.6.2 Subsurface pathways (page 6-53). “The developable shale formations are vertically separated from potential freshwater aquifers by at least 1,000 feet of sandstones and shales of moderate to low permeability;” In K. Fisher (July, 2010) “Data confirm safety of well fracturing” published in *The American Oil & Gas Reporter*, Mr. Fisher, the general manager of Pinnacle, a Halliburton Service, helpfully maps the distance from the wellbore to the top of a fracture in various wells in the Barnett and Marcellus shales. Particularly, in the Marcellus, the fractures can travel at least 2000 feet. This is well below the aquifer in the Barnett and in the Marcellus in Pennsylvania, but is well within the distance to the aquifers and salt mines of much of the Marcellus region in New York. Thus, Mr. Fisher makes an eloquent case for banning hydraulic fracturing at the very least in all but the southern tier of New York State, and more likely the entire state.

“The amount of time that fluids are pumped under pressure into the target formation is orders of magnitude less than the time that would be required for fluids to travel through 1,000 feet of low-permeability rock;” This sounds reassuring but the statement is not of any use in assessing the safety of this method. No one has ever suggested that the fluids could flow in that time through 1,000 feet of low-permeability rock. It is preposterous to even bring this up in this context. The issue has nothing to do with flowing through low-permeability rock, it is the possibility of flowing through fractures and abandoned wells that dot the landscape.

“Any flow of fracturing fluid toward an aquifer through open fractures or an unplugged wellbore would be reversed during flowback, with any residual fluid further flushed by flow from the aquifer to the production zone as pressures decline in the reservoir during production.” I would like to believe that the DEC has presented this document with serious intent. When I read statements like this, I assume that nonsense is simply being inserted by industry representatives with no oversight from DEC personnel. I would ask Mr. Martens to read this nonsensical statement and see if he could say this to the public with a straight face.

6.1.7. Waste transport (page 6-56). “Drilling and fracturing fluids, mud-drilled cuttings, pit liners, flowback water and production brine are classified as non-hazardous industrial-commercial waste” This is a useful place to point out that the material is defined as non-hazardous by exemption from the EPA. This exemption has nothing to do with science, and in fact, much of this material is very hazardous and highly toxic. Although the EPA apparently will occasionally set policy by politics and industry influence, the DEC should base its assessment on science and not politics.

“Manifesting is not required for non-hazardous industrial-commercial waste, so there is no tracking and verification of disposal destination on an individual load basis. Although the Department’s regulations do not classify drilling and production wastes as hazardous, like all wastes they must be handled and disposed of in accordance with all applicable regulatory requirements.” The DEC should recognize the hazards to which it is subjecting the public. Defining a substance as nonhazardous in this manner is similar to a vegetarian defining a rare, juicy steak as a vegetable and eating it with gusto.

6.1.8.1 POTWs. (pages 6-57 and beyond). Without a detailed description (CAS numbers) and serious MCLs for each chemical used (not generic MCLs, which as noted above are meaningless), how can one assess whether flowback or produced water has been treated in a manner safe for release from the facility? I believe that this is yet another instance where the DEC has not taken its responsibility to protect the environment and the health of the citizens of NYS seriously.

6.1.9.1 NORM Considerations – “Cuttings (page 6-65). Gamma ray logs from deep wells drilled in New York over the past several decades show the Marcellus Shale to be higher in radioactivity than other bedrock formations including other potential reservoirs that could be developed by high-volume hydraulic fracturing. However, based on the analytical results from field-screening and gamma ray spectroscopy performed on samples of Marcellus Shale, NORM levels in cuttings are not likely to pose a problem because – as set forth in Section 5.2.4.2 – the levels are similar to those naturally encountered in the surrounding environment.” I hope there is a proof reading error here and that the DEC has something meaningful to say. As written, it states that the Marcellus is higher in radioactivity than other formations (actually the radioactivity is the signature of the formation) but, don’t worry, it is not higher in radioactivity than the surrounding environment. I’m sorry, but this makes absolutely no sense. I’m sure there is some logical analysis that was done, and it should be described.

6.5.4 Air Quality Monitoring Requirements for Marcellus Shale Activities. (Page 6-183): The air monitoring program must be done by the DEC in order to be credible. It is not very difficult to determine how to fund this. The industry can simply pay for it as part of the severance tax or a fixed tax on each well.

6.8.1.1 New York State-Economy and Employment (pages 6-211 to 6-215): This analysis does not take into account that most of the higher paying jobs will go to out of state workers and much of the income will be spent out of state. That would overestimate the multiplier effect used. Although that is what is seen in PA, for whatever reason, this simple fact is never considered in their overly optimistic models. Secondly, the negative impacts are not considered. If one visits, for example, Bradford County, PA, it is clear that businesses have been lost due to drilling activity. In the Finger Lakes of NY, the negative impacts are likely to be much greater. The effects on the tourism and wine industry are likely to be enormous and would have to be taken into consideration if this analysis is to be credible. Indeed, this is treated on page (6-231): “Conversely, some industries in the regional economies may contract as a result of the proposed natural gas

development. Negative externalities associated with the natural gas drilling and Revised Draft SGEIS 2011, Page 6-231 production could have a negative impact on some industries such as tourism and agriculture. Negative changes to the amenities and aesthetics in an area could have some effect on the number of tourists that visit a region, and thereby impact the tourism industry. However, as shown by the tourism statistics provided for Region C, Cattaraugus and Chautauqua Counties still have healthy tourism sectors despite having more than 3,900 active natural gas wells in the region.” The DEC is commended for having transcribed this talking point so accurately from the gas industry. I recall Dennis Holbrook of Norse Energy making this point almost verbatim. Of course, one can drive through Cattaraugus and Chautauqua Counties and then through Bradford County, PA and notice a qualitative difference. According to the scenarios in this document, the counties affected by drilling should be similar to Cattaraugus and Chautauqua counties in about 30 years; in the meantime, we will be more like Bradford County. This is an important point that has not been seriously analyzed in this document. Unfortunately, at this point, the economic analysis has little credibility. Consider the traffic in Towanda, PA on any day of the week. Now imagine the same traffic in Hammondsport or Watkins Glen. It is unlikely the tourist industry could survive under those conditions.

6.8.1.1 New York State (pages 6-254 to 6-257): In the analysis of the effects of drilling on the economy, the negative impacts are vastly underestimated. No mention is made of the loss of tax revenues from individuals fleeing the state to escape gas drilling. These would be mainly higher income individuals, so that the loss of tax revenue could be significant. Nothing is mentioned of the loss of revenue from the tourist and wine industries. The DEC can continue to parrot the industry line that these industries will not be affected, but by doing so, the economic analysis is compromised. Particularly, in Tompkins County, the major economic driver is higher education. If Tompkins County is extensively drilled, it is very easy to see that Ithaca College and Cornell University will suffer severe economic loss. The outstanding faculty of these institutions are here by choice, and if the area becomes similar to Bradford County in PA, significant numbers of faculty members will undoubtedly accept positions elsewhere. The students are equally outstanding and have many other offers. One could imagine that signs, such as those in Bradford County, PA, warning drivers that the route they are taking has a high incidence of alcohol-related accidents (e.g., “High DUI crash area” and “Aggressive driver crash area”), might create a negative impression on parents dropping their children off at Cornell or Ithaca College for their freshman year. It is unlikely that with the exodus of the faculty and the industrialized conditions, these institutions could survive at their current level. This would be an economic blow to the area that could not possibly be compensated by the revenue from gas drilling. One more point: the revenue projected from drilling is all indirect. Most states that allow this process fund the regulation and remediation by a severance tax. Why NYS has not adopted this is beyond comprehension.

7.1.3 Surface Spills and Releases at the Well Pad (page 7-32): “This would include disclosure to the Department of fracturing fluid constituents, so that the appropriate remediation measures can be taken if a spill occurs.” This illustrates the importance of

providing the composition of the fracturing fluid to residents within 3 miles of the well and first responders (hospital, fire, ambulance staff in the area) BEFORE the construction of the well pad. Water should be tested for the specific chemicals in the fracturing fluid as well as known compounds and minerals that are typically found in flowback water before drilling begins. This protects both the industry and the public by providing good baseline data to assess any potential contamination due to spills. Waiting to provide the information after the spill may be helpful to the DEC, but is not helpful to the public, particularly first responders. MSDS sheets are not adequate disclosure as many of the chemicals used are listed as proprietary on MSDS sheets. Public safety should come before the marginal commercial benefits associated with keeping these chemicals secret. The cost of doing business in New York should involve protecting the public and assessing scientifically whether environmental impacts have occurred. Pennsylvania has allowed these companies to hide under the veil of secrecy to the detriment of the public. We should not allow that to happen in NYS.

7.1.4 Potential Ground Water Impacts Associated With Well Drilling and Construction (Page 7-45): “The NYSDOH recommends testing for the analytes listed in Table 7.3 to aid with determining whether gas drilling may have had an impact on the quality or quantity of a well. This analysis is not intended to constitute a comprehensive evaluation. In the event that a potential impact is determined, additional investigation (e.g., isotopic analysis of methane to determine source or site-specific chemical analysis) may be necessary.” Yes, it is not comprehensive and one can even argue, based on the statement on page 5-138 (“Based on the low VOC content of these compositions, pollutants such as BTEX are not expected”), that the DEC is deliberately trying to avoid finding any contamination by choosing organic markers (BTEX) that they explicitly state are unlikely to be present. Further, if one suspects “potential impact,” further testing is a good idea but it is too late. The industry always says that the contaminants were present before drilling began. One might think that the purpose of the DEC is to streamline drilling activities, but the higher goal is to protect our environment and the public. Full testing must be done BEFORE a well pad is constructed. Testing should include ALL components of the drilling and hydraulic fracturing fluids as well as ALL compounds and minerals known to be extracted with the flowback fluid. This may cost the industry a small amount more for each well drilled, but it allows careful assessment of the impacts of drilling, which benefits both the industry and the public. As proposed, the testing in this section is completely inadequate and intentionally biased to avoid careful scientific inquiry as to the safety of this method of drilling.

Impacts to water quality have been documented in the Duke study out to 3000 feet. Residents within a mile of the well must be provided with adequate information so that specific testing for drilling and hydraulic fracturing fluids could be done before drilling if they so choose.

7.1.6 Hydraulic Fracturing Procedure (page 7-59): “The presence of 1,000 feet of low-permeability rocks between the fracture zone and a drinking water source serves as a natural or inherent mitigation measure that protects against groundwater contamination from hydraulic fracturing.” As noted above, K. Fisher (July, 2010; “Data confirm safety

of well fracturing” published in *The American Oil & Gas Reporter*) noted that fractures can extend more than 2000 feet in low-permeability rocks. This is no protection for aquifers in regions of the Marcellus that are relatively shallow 2000-3000 feet.

7.1.7.2 Road Spreading. Production Brine (page 7-60). The DEC should note that, if approved, this material will be spread along roads that have homes. Adults, children, and companion animals live in these homes. At a minimum, the DEC should report to these people the chemical composition of the production brine to which they are subjecting these individuals. Note that dogs drink from puddles in the road, children walk barefoot on roads and inadvertently consume materials on the road (a child can touch the puddles in the road and lick his or her fingers). I am not writing this as a hypothetical situation. This is what is happening in Pennsylvania (and, sadly, has happened in NY). But we know of cases in PA that have led to the death of animals that have consumed brines that have been spread on the roads. This is an unacceptable practice and, even with the best of intentions, the DEC will likely put at risk the health of people and animals by allowing this practice.

7.2 Protecting Floodplains (Page 7-76): The recent flooding in upstate NY and PA demonstrates the inadequacy of this language. Many of the areas flooded were outside 100-year floodplains. The floodplains would have to be carefully reevaluated in order to provide any protection.

7.10.2 Access Road and Traffic Noise (page 7-129 and 7-135) “Where appropriate, roads should be located as far as practicable from occupied structures and places of assembly.” The department should realize how meaningless statements such as this are. Judging from experience in PA, the access roads will be sited as convenient to the drillers absent any strict guidelines from the DEC. I recently visited a farm in Tioga County that had approximately a quarter mile of frontage. Nevertheless, the drilling site was located within 30 feet of the barn and the access road ran within 20 feet of the kitchen of the farm house. This was done over the vigorous protests of the owners of the farm. The road may have been practical for the drilling company but was devastating to the land owners. Whereas comforting statements such as these can be made in this document, without strict guidelines and equally strict reinforcement, it will be as easy for the drilling companies to ignore as it was for the DEC to write this.

7.13 Emergency Response Plan (page 7-146): An ERP must include a list of all chemicals used on the well pad, including those used in drilling and hydraulic fracturing. The ERP should have the MSDS for each component, along with identification of all chemicals used (CAS numbers; the MSDS frequently does not specify the chemical components of a mixture but lists them as proprietary. Because of the importance to public health, “proprietary” is not an adequate excuse for lack of full disclosure).

8.1.1.1 SEQRA Participation (page 8-1 and 8-2): The proximity to a salt mine (both horizontal and vertical directions) should be considered.

8.1.3.2 Occupational Safety and Health Administration – Material Safety Data Sheets

(page 8-23; same comment for text on page 8-30): “that the specific chemical identity is made available to health professionals, employees, and designated representatives in accordance with the provisions of 29 CFR §1910.1200(i)(3) and (4) which discuss emergency and non-emergency situations.” The issue here is quite simple: public health should trump trade secrets. MSDS should be provided IN ADVANCE not only to health care professionals but also be available to the public on request. The proprietary chemical must be identified to both the health care professionals and the public. If the industry is not able to do that, then the component should not be used. There are many reasons for this. Most importantly, health care professionals cannot wait to obtain necessary information in an emergency. For the public, it is essential that water and air testing be done for the chemicals that will actually be used. If one discovers after the fact that a well or air is contaminated, it will be difficult or impossible to show definitively in retrospect that the well or air was not contaminated before drilling began. By giving the industry this loophole, they can effectively avoid blame for any contamination. This has played out over many years in Colorado, Wyoming, Texas, and, more recently, Pennsylvania. If we allow them the same loophole here, the scientific evidence showing either that drilling is safe or that it is unsafe cannot be obtained.

Public Disclosure of Additive Information (page 8-31): (see comment above). The idea that a trade secret should be more important than public health is outrageous and should not be tolerated by the DEC. The DEC does not have to allow drilling with components that are considered trade secrets. If the industry wants to drill and wants to inject chemicals into our land and our aquifers, then they should disclose the chemical names (CAS numbers) and quantities to the public. If they choose not to, that is their decision, but the consequence should be the denial of the well permit with no exceptions. Furthermore, simply providing a list of hydraulic fracturing additives and MSDS sheet is not very useful information unless it is specific to the well, so that appropriate testing can be done. The idea that the compounds cannot enter drinking water is a hypothesis of the DEC, not a proven fact. Even if the fracturing fluid does not enter the aquifer as part of the injection process, surface spills of the material threaten our water. Even in the best of circumstances (and the best of circumstances rarely prevail), accidents can happen and it is the responsibility of the DEC to protect the public rather than the financial interest of the oil and gas industries.

Chapters 10 and 11: The DEC has set up a policy of hoping for the best and planning for the best when experience elsewhere dictates that we should hope for the best and plan for the worst. Of course, in hindsight, accidents can be prevented, but a limited description of a few of the many problems encountered in PA and the DEP response, in hindsight, is marginally satisfying to the public interest. Unless the DEC takes the potential impacts to human and animal health seriously and sets up a system where health impacts can be measured scientifically, it will be business as usual in New York for the gas and oil industry. Well, that is, business as usual without the taxes levied in other states and the necessity to conform to zoning regulations.

Overall comments: This document is lacking in many ways, but perhaps the most

important is the lack of consideration of public health. The position of the DEC seems to be that no problem will occur because the regulations that they develop are so good. We know that no other state has provided adequate regulations to protect the environment from this process, so the DEC is simply proposing regulations and hoping for the best. What this amounts to is an uncontrolled health experiment on an enormous scale with New York State citizens as the experimental animals. It is actually worse than that, since these experiments are completely uncontrolled and, by choice of the DEC, designed to be inconclusive. If proper testing of air and water before, during, and after drilling is not done, then science will not control the debate nor will it inform the regulations. The party with the largest public relations operation will control the debate and influence policy. I can only hope that the DEC will reconsider and put into place regulations that can truly assess the effects of this process on the environment and do it BEFORE large scale drilling begins. The minimum procedure for adequate testing that will allow proper scientific studies would include the following:

- 1) The sampling must be done by a disinterested third party with a clear chain of custody between sampling and testing. A certified independent laboratory must do the testing, and the results must be available to all interested parties.
- 2) All chemicals (IUPAC names and CAS numbers) used in the hydraulic fracturing fluid at any concentration for each well must be disclosed to the property owners within a five mile radius, testing laboratories, local governments, and state agencies. MSDS sheets for each chemical and chemical mixture must accompany this disclosure. Following this procedure will allow prior testing to be targeted to specific chemicals to be used in the drilling process for a specific well, as well as providing valuable information to first responders and hospital personnel in the case of an accident.
- 3) Upon suspicion of adverse health effects, testing must include air, soil, wastewater, all sources of drinking water, and blood, urine and tissue samples from affected animals and humans. If methane is present in drinking water, isotopic analysis to determine the origin (thermogenic vs. biogenic) must be done. Testing must include a complete toxicology screen of any animal or human with pathology suspected to be associated with drilling.
- 4) Air canister tests are essential. This must be done as a baseline before drilling begins and during and after well flaring. It also must be done after a wastewater or drilling mud lagoon (if allowed by permit) and a compressor station have been established.
- 5) Fracturing fluid chemicals and chemicals released from the shale that are known or possible human carcinogens, regulated under the Safe Drinking Water Act, or listed as hazardous air pollutants under the Clean Air Act must have designated EPA Maximum Contaminant Levels (MCL). Many of the chemicals to which both people and animals are exposed as a result of high-volume hydraulic fracturing are not listed as primary contaminants, and thus have no enforceable EPA MCL. More than half of the chemicals listed as toxic chemicals in a recently released U.S. House of Representatives report have no EPA MCLs. The generic and arbitrary NYS MCLs are no substitute for MCLs based on scientific evidence.
- 6) Expenses for all testing must be a part of the cost of doing business for gas well drillers.

Testing before and during drilling operations is an important part of documenting health effects. If health effects are related to a chemical preexisting in a pond or well, this would prevent a false association between drilling and water contamination. Alternatively, if a change in chemical composition is correlated to health changes, then a strong justification for compensation is provided. Beyond that, a better understanding of what practices lead to water contamination can be obtained. This will be a benefit to people living in the

midst of shale gas drilling and will, in fact, benefit the industry by providing consistent and useful data to guide operations. The current practice of under testing and denying any link between drilling and water or air contamination is beneficial to neither the public nor the industry.

At a New York Policy Forum on October 6, 2011, Dr. Terry Englender (Penn State) conceded that the potential risk of careless operators and honest mistakes being made is enormous. He said: "There probably can never be enough regulators, particularly if you're on the side of really making sure that this is done right." Dr. Englender is a tireless and unapologetic proponent of the use of hydraulic fracturing in tight shales. He essentially rejects the position of the DEC that the environment will not be put at risk if adequate regulations are in place. Taking the advice of Dr. Englender, the DEC should withdraw this version of the SGEIS and plan for worst-case scenarios, setting up conditions and regulations allowing good science to dictate policies.

