

**Water Issues -- Withdrawals, Use, Disposal, Contamination**

1. DSGEIS states that private wells and springs should be used as drinking water sources only as a last resort. There is no discussion about the fact that they are many people's only option. [dSGEIS p. 2-24]
2. Drinking water standards only protect against known or anticipated contaminants and therefore will not guard against chemicals that are not historically anticipated to be in drinking water. Yet, DEC will not make chemical contents public. [dSGEIS p. 2-12]
3. Inappropriate reliance on the fact that "No documented instances of groundwater contamination are recorded in the NYSDEC files from previous horizontal drilling or hydraulic fracturing projects in New York." DEC has acknowledged that it has never looked. [dSGEIS 2-26]
4. Water testing does not test for methane. [dSGEIS p. 7-41] Local health departments are responsible for addressing and investigating water contamination. [dSGEIS p. 7-42]
5. Other potential causes have to be ruled out before water contamination cases are referred back to DEC. Presumption is not that problem is caused by drilling. [dSGEIS p. 7-42]
6. No discussion of impact of 4000 identified wells awaiting plugging or 40,000 unidentified abandoned wells. [STRONGER survey of NY 2006] Yet the dSGEIS notes at Appendix 11, p. 31 "It is theoretically possible but extremely unlikely that a flow path such as a network of open fractures, an open fault, or an undetected and unplugged wellbore could exist that *directly* connects the hydraulically fractured zone to an aquifer." (emphasis added)
7. Lack of distinction between drilling waste, flowback waste water and produced water/waste. Incomplete understanding of composition of any of those wastes. DEC has done no testing of these wastes. [dSGEIS 5-101, 6-18, 7-34, 7-50] Nor does the DEC have any idea of potential volumes. [dSGEIS p. 7-90] But the DEC does hope, that by the time the dSGEIS is finalized industry (in the form of the Marcellus Shale Committee and the Appalachian Shale Committee) will make public data about flowback waters. [dSGEIS p. 7-96]
8. Water treatment plants are left to their own devices to determine what kind of wastes they receive...." It is incumbent upon the POTW to determine whether the volumes and concentrations of chemicals present in the flowback water or production brine would result in adverse impacts to the facility's treatment processes as part of the above headworks analysis." [dSGEIS 7-59]
9. Road spreading of "produced water" is allowed (although no distinction is made between the differing kinds of wastes and DEC acknowledges no testing has been done.) Flood Zone maps are out of date so do not provide adequate protection against flooding of gas wells or open pits. [dSGEIS p. 2-35] Yet, severe flooding is acknowledged as a problem. [dSGEIS p. 6-42] Conclusion: Local governments are expected to "consider" this problem.

## SAMPLE COMMENTS TO THE dSGEIS -- BY TOPIC

10. There is no proposed permitting for the 10,000 to 12,0000 gallons of diesel fuel that will be stored on site. That is the quantity of gas that an ordinary gas station keeps on hand. [dSGEIS p. 5-23]
11. Failure to address large scale water withdrawals. “The concern for aquifer depletion due to increased ground water use in New York is being reviewed and addressed by the DEC.” [dSGEIS p. 7-6] But not in the dSGEIS.
12. The only discussion of recycling or conservation of water is the note that “it is beneficial to the operators to implement water conservation practices.” [dSGEIS p. 7-78]
13. Stormwater permits need to be revised, but have not been yet and inspections and documentation of storm water permits is apparently left up to local governments. [dSGEIS p. 7-25]

### **“Centralized Impoundments”**

14. Large centralized impoundments of toxic waste would not even be subject to the same regulations as ponds of fresh water. [dSGEIS p. 6-38] Liner requirements will be the same as for landfill leachate, but “ as with all environmental containment systems, it is acknowledged that conservative liner requirements alone do not guarantee groundwater protection. Emphasis has to be placed upon facility design....to best ensure[] successful protection of the groundwater..” [dSGEIS p. 7-52] But none of the “emphasized” items are required. In fact, the DEC points out that above ground storage tanks are preferable, but they don’t require them. [dSGEIS 7-55]
15. At p. 2-31 the dSGEIS notes that the region receives more precipitation than evaporation, but fails to address what that means for open pits collecting rainwater over time. [dSGEIS, p. 6-56, pits may be used for up to three years.]
16. If flowback impoundments are used, the dSGEIS states that it will be necessary to exclude certain solvents and surfactants containing benzene and xylene from frac’ing fluids. [dSGEIS p 7-89] Yet benzene appears to occur naturally in the Marcellus shale and will be present in the flowback whether it is added as a solvent or not.
17. Despite the fact that “these larger off-site impoundments have the potential to qualify as a major source of Hazardous Air Pollutants (HAPs) due to certain chemicals,” the DEC still plans to allow them although maybe, it might require, in some instances “a physical barrier to public access at least 500 feet from the well pad” but only if the applicant is not able to show that specific control equipment will be used to further reduce particulate matter emissions during hydraulic fracturing operations. [dSGEIS p. 7-89]
18. It is possible the water in these pits will be contaminated with radioactivity. Yet no studies have been undertaken. [dSGEIS p. 7-103] DEC notes that someone (it does not say who, when or how) should take sampling, analysis, and surveys after production has begun and determine what radioactive material licenses may be needed.

## SAMPLE COMMENTS TO THE dSGEIS -- BY TOPIC

### **Chemicals**

1. Inadequate data on chemicals - Data is on hand for 197 products with complete information on 152 of those. Within the 197 products are 260 chemicals that the DEC had identified and at least 40 that they have not. (dSGEIS p. 5-35) DEC has not considered or investigated the biocides being used -at least one of which (4-nitroquinoline-N-oxide) is used to induce cancer in lab rats. [dSGEIS p. 5-111, 6-92, testimony of Dr. Hays) Appendix 11, p. 32 states that "The solubilities of many chemicals proposed for use in hydraulic fracturing in New York State are not well established or are not available in standard databases..."
2. DSGEIS proposes to wait for an emergency to research some of the chemicals "In the event of environmental contamination involving chemicals lacking readily available health effects information, the toxicology literature would have to be researched for chemical specific toxicity data. [dSGEIS p. 5-65]
3. Radioactive contamination of drilling equipment and waste is completely unexplored. [dSGEIS p. 5-131] "No state has assessed the occurrence of NORM from longer duration drilling operations at multi-well sites or larger accumulations of shale cuttings from horizontal drilling." [dSGEIS p. 7-99] However, initial tests show the potential for NORM build up to the extent that NORM waste may require licensing and production water may be subject to limitations as radioactive waste. [dSGEIS p. 7-103]
4. Synergy, whereby chemicals react with each other and the environment, has not been investigated, so there may be many chemicals produced by the reaction of frac'ing fluids with each other and the environment that result in chemicals that are not being tested for. Benzene is a known carcinogen.
5. Refusal to consider "green chemicals" on the basis that "at this time, it may not be feasible to require the use of 'green' chemicals because presently there is no metric or chemicals approvals process in place in the US." [dSGEIS p. 9-10]
6. DSGEIS concludes that "the only potential exposure pathway to fracturing additives identified by this Supplement is via air emissions from uncovered surface impoundments used to contain flowback water....Therefore the Department proposes that full chemical disclosure be required for applications that propose open surface impoundments. Products listed in Table 5.3 require no additional disclosure, but the application materials will have to specify their planned concentrations in the fracturing fluid. The Department recognizes that flowback water chemistry may be preferable for determining impoundment emissions, but to date Department staff has not seen any flowback water analyses that tested for all of the chemicals and compounds that could be present. ... For well permit applications that do not propose use of open surface impoundments, the Department proposes to require identification of additive products and proposed percent by weight of water, proppants and each additive. .... This Supplement has not identified any potential impact other than impoundment emissions that requires full compositional disclosure to the Department for such water-based solutions."

**Greenhouse Gas Emissions – Air Pollution**

1. Reliance on Penn State/industry data that natural gas development will reduce Greenhouse Gas Emissions when this is not clearly the case. [dSGEIS p. 2-6]
2. Assumption that development of natural gas resources serves the public interest when this is not clearly the case. [dSGEIS §2.2]
3. Determination that “The prohibition of development of Marcellus Shale and other low permability gas reservoirs by horizontal gas drilling and [HVHF] would be contrary to New York State and national interests.” [dSGEIS 9-1]; “It would also contravene Article 23-0301 of the Environmental Conservation Law where it is stated:...” [dSGEIS 9-2]; “The Draft 2009 New York State Energy Plan recognizes the potential benefit to New York from development of the Marcellus Shale natural gas resource:” [dSGEIS 9-3]; and “such a prohibition is contrary to New York statute and State policy advocating development of this resource. A prohibition would also deny owners of mineral interests an opportunity to realize the benefit of mineral rights ownership. It is not a reasonable alternative to development as set forth in this dSGEIS.” [9-3]
4. Air pollution from diesel exhausts, well emissions, and pipeline emissions, and flaring are not mitigated.
5. The discussion of TEG dehydration units relies upon “industry supplied emission data” and while “impacts are predicted to be above the corresponding standards, no simple mitigation measures were indicated.” [dSGEIS p7-88] Apparently since industry did not tell DEC how to mitigate the problem, it won’t be mitigated. The DEC does suggest “the preclusion of public access” to the well pad (although set backs from the public range from 50 to 100 feet) or that “alternative mitigation measures could be defined by industry...”
6. The DEC also notes that it “encourages” participation in the STAR program (but it is not mandatory). [dSGEIS p. 7-92] It also helpfully points out that well operators could limit generation of carbon dioxide by limiting vehicle miles travelled.

**Absence of Actual Rules and Regulations, Funding, Inspections**

1. Lack of required inspections on the site (pre-drilling and at closure only) when inspection should be required as a deterrent. [dSGEIS p. 1-5, 5-127]
2. DSGEIS proposes to rely on site specific permit conditions and other “existing Department tools” instead of regulations and rules. [dSGEIS p. 3-4, 7-26, 7-53] If site specific conditions are required, then a GEIS should not be relied upon. The DEC notes that if they can make site specific determinations, they don’t need to seek variances.

**Pipelines**

1. The dSGEIS complete ignores all aspects of pipelines and compressors associated with natural gas drilling, from gathering lines, to loss of habitat and topsoil, setbacks from structures, inspections, shutoff valves and emissions.

## SAMPLE COMMENTS TO THE dSGEIS -- BY TOPIC

### **Cumulative Impacts**

1. Cumulative impacts are completely dismissed as too difficult to figure out. [dSGEIS p. 6-145-6]. The Marcellus Shale is acknowledged to be a “blanket play” with 100% success rate yet found to be comparable to the wells drilled in 1985 which were into a limited number of pools or reservoirs and thus had a very low success rate.

### **Geologic Impacts**

1. Lack of understanding about results of underground fracturing “ICF reports that, despite ongoing laboratory and field experimentation, the mechanisms that limit vertical fracture growth are not completely understood.” [dSGEIS p. 5-89] Analytical techniques ....still imperfect...” [dSGEIS p. 5-90]
2. No discussion or mitigation of drilling into faults or inducing seismic reactions because it is “in the operator’s best interest” to avoid drilling into a fault and they will “endeavor” to be “prudent.” [dSGEIS p. 6-149, 150, 154]

### **Impacts on Wildlife - Flora - Communities**

1. Wildlife are expected to just know that the 5 acre open pits of toxic waste are just that and not ponds. [dSGEIS p. 6-48] It is suggested but not required, that operators make pits “unattractive” to wildlife and netting “should” (but not must) be used.” [dSGEIS p. 7-83]
2. No discussion of impact of pipelines on habitat fragmentation.
3. A comprehensive plan for dealing with invasive species will be (but isn’t yet) developed. (dSGEIS p. 7-74) The DEC notes that “precautions must be implemented” but doesn’t provide any. [dSGEIS p. 7-78] And after noting that “the safest way to avoid transfer of invasive species is not to transfer water from one waterbody to another.” [dSGEIS 7-78] Yet DEC does not prohibit the practice.
4. No visual impact mitigation are mandated, but the DEC makes some suggestions that industry can voluntary take or not. [dSGEIS p. 7-104] And DEC “encourages” the operators to review the local land use plan and to try to not site wells in areas where there will be impacts. But none of this is mandatory. [dSGEIS p 7-106]
5. The DEC also notes that “noise is best mitigated by distance” and that drilling is more tolerable during the day than at night [dSGEIS p. 7-107], but mandates no noise buffers or restrictions on drilling times.

### **Impacts on Municipalities**

1. Responsible for monitoring and investigating water tests [dSGEIS 7-42]
2. Responsible for storm water permit inspections [dSGEIS p. 7-25]
3. Responsible for “considering” impacts of flooding [dSGEIS p.6-42]
4. Road Use agreements are suggested but not mandated. Road system integrity test is suggested. [dSGEIS p. 7-110]
5. Municipalities must monitor the NYSDEC website to learn about wells. [dSGEIS p. 7-110]