

New York State Assembly Standing Committee on Environmental Conservation  
Hearing on the Revised Draft Supplemental Generic Environmental Impact Statement for Shale Gas  
Development

Hamilton Hearing Room B, 2nd Floor, Legislative Office Building

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Testimony of Ronald E. Bishop, Ph.D., C.H.O.

Assemblyman Sweeney, other distinguished legislators and guests, I want to thank you for this opportunity to comment on our Department of Environmental Conservation's latest draft of the Supplemental GEIS for Oil, Gas and Solution mining. Today, I will focus on two aspects of the document: significant over-estimates of projected economic benefits from shale gas development, and significantly underestimated historic (and therefore, projected) environmental costs. I believe that we cannot determine what levels of regulation are appropriate without realistic benefit and cost profiles for this proposed industrial expansion.

Benefits anticipated from shale gas development are inexorably tethered to new sales of natural gas. Whatever associated multiplier factors may be observed, demographic groups impacted, jobs generated, investors rewarded, or taxes collected: this economic engine will run on the money raised by a single commodity. Therefore, projected benefits depend on how much natural gas is available for extraction. After considering the most authoritative and compelling reports from government and industry analysts, I find the recoverable shale gas estimates in this revised draft SGEIS to be unsupportable; they are exaggerated by as much as an order of magnitude.

My first clue to this over-estimate was found in Figure 4-10, Chapter 4 of the Economic Assessment Report prepared by Ecology and Environment, Inc. (incorporated late into the DEC's rdSGEIS), where the "Production Profile Based on IOGANY's 'Low Estimate'" indicated a 30-year life-span. This was a simple error to spot: No horizontally-drilled, hydraulically slickwater-stimulated gas well in any shale formation has ever been shown to produce gas for thirty years. To the contrary, writing for The Oil Drum, Arthur E. Berman and Lynn F. Pittinger cited several thousand shale gas wells which dropped below commercially viable production between 5 and 12 years after "spudding", with a collective half-life of about 8 years.<sup>1</sup>

Seeing this discrepancy, I scrutinized the per-well production projections found in Chapter 4.1.3 of the Economic Assessment Report (op. cit.). Though ultimate recoveries were not given explicitly, I used the report parameters to calculate estimated ultimate recovery (EUR) projections which ranged from 3.8 billion cubic feet (BCF) to 9.5 BCF for individual wells (low- and high-estimates, respectively). In contrast, Berman and Pittinger (op. cit.) reported actual ultimate recoveries for thousands of shale gas wells which ranged from 1.1 to 3.0 BCF per well. It is small wonder that DEC officials appeared to choose IOGANY's "low-estimate" for subsequent projections.

However, I found the most glaring discrepancies when I compared U.S. Geological Survey estimates of recoverable natural gas from the Marcellus formation with related estimates in Tables 4-3, 4-4, and 4-5 of the Economic Assessment Report: "Projected Natural Gas Production in Region A (B, C)". These tables provide annual estimates of gas production in low-, average- and high-development (maximum build-out) scenarios. As indicated in the accompanying spreadsheet, 60-year production from Regions A, B and C combined is projected to reach 29.1 trillion cubic feet (TCF), 116.1 TCF and 172.2 TCF of natural gas (low, average- and high-

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<sup>1</sup> Arthur E. Berman and Lynn F. Pittinger (August 5, 2011), "U.S. Shale Gas: Lower Abundance, Higher Cost"; The Oil Drum. <http://www.theoil Drum.com/node/8212>

development scenarios), all from an area of less than 8000 square miles.<sup>2</sup> For comparison, these equal 3.67 BCF per square mile (sq. mi.), 14.6 BCF/sq. mi., and 21.7 TCF/sq. mi., respectively.

The most recent estimates from the U.S. Geological Survey indicate that the upper limit of recoverable natural gas from the Marcellus formation is 84.2 TCF throughout its entire extent of 54 thousand square miles.<sup>3</sup> For comparison, this equals 1.56 BCF/sq. mi., half of the low-development estimate found in our rdSGEIS – and more than an order of magnitude below the high-development rdSGEIS projection.

All these figures lead me to two disconcerting conclusions:

(1) Either IOGANY representatives are not competent to provide reasonable projections of Marcellus shale gas production, or their estimates are intentionally misleading, and

(2) Either our DEC officials are not competent to independently evaluate IOGANY's claims, or they are complicit with gas industry advocates in exaggerating projected benefits.

These statements have ramifications which far outweigh the significance of any benefits analysis: our agency officials either cannot or will not tell us the truth.

I'll direct the rest of my comments to underestimated environmental costs of shale gas development in the rdSGEIS. Again, my first clue that something was amiss came from reading in the rdSGEIS Chapter 2, section 2.4.6: "History of Drilling and Hydraulic Fracturing in Water Supply Areas", that the only recent incident of groundwater contamination was a 2007 air-fracturing (top-hole drilling) accident in Brookfield Township, Madison County. That account ended with a quote from Dr. Geoffrey Snyder, Madison County Health Department, "Overall, we find things have pretty much been resolved and the water quality back to normal if not better than pre-incident conditions." This contrasts rather starkly with a recent communication from Brookfield's Town Supervisor, John Salka:

"It appears that Mr. Snyder was, in fact, quoted correctly. I communicate regularly with Mr. Snyder, as I am the Chair of the committee that oversees his operation. What has not been mentioned by anyone at this point, and I hope to correct this, is that there are still those that were affected by the drilling accident that still do not have water that they feel is safe to drink.

"Let me give you a bit of history with this. When the wells were contaminated, the insurance company for the drilling company, AIG (we have heard that name before) forced the people affected into a cash settlement and left them with no recourse at all for future claims. The filtration systems that they installed for these people are very expensive to maintain, and most have either spent the money elsewhere on other things such as groceries and light bills, or have found that the money that they settled for was simply not enough to provide for long term upkeep of the systems. Some have simply given up and drink bottled water.

"One resident recently came to my house, five years after the accident, to tell me that he has not been able to drink the water in the house that his grandfather grew up in since then. Sad.

"As far as county health, they did their part, took into consideration that the filtration systems were doing their job, and closed the case. Because no one has taken this up with them since then, case closed. The real story here

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<sup>2</sup> Ronald E. Bishop (October 5, 2011), "IOGANY/rdSGEIS Estimated Production of Natural Gas from New York Marcellus Shale"; Exhibit A

<sup>3</sup> James L. Coleman, Robert C. Milici, Troy A. Cook, Ronald R. Charpentier, Mark Kirshbaum, Timothy R. Klett, Richard M. Pollastro, and Christopher J. Schenk (August 23, 2011), "Assessment of Undiscovered Oil and Gas Reserves of the Devonian Marcellus Shale of the Appalachian Basin Province, 2011"; United States Geological Survey. <http://pubs.usgs.gov/fs/2011/3092/pdf/fs2011-3092.pdf>

is that people were affected and are to this day. What should have happened from the time this occurred was a class action law suit brought against the company and AIG but the people affected were abandoned by the previous town supervisor and told it was not the town's problem.

“I hope this clarifies things a bit for you, and I look forward to our continued communication regarding this very important issue.”<sup>4</sup>

Other incidents of questionable investigation, follow-up and reporting of water well pollution where gas development was implicated have occurred south of Jamestown, Chautauqua County (2007), south of Andover, Allegany County (2009) and both north and west of Springville, Erie County (2011), to cite what may be the most egregious recent cases.<sup>5</sup> Not one of these is mentioned in Section 2.4.6 of the rdSGEIS.

But far greater in scale than these possibly isolated incidents is New York's systemic problem with abandoned oil and gas wells. Little apparent progress has been made in dealing with the 4,722 wells on the state's priority plugging list,<sup>6</sup> let alone on our approximately 57,000 abandoned and orphan oil and gas wells statewide.<sup>7</sup> Reference to this issue in the rdSGEIS is limited to a recommendation that new well projects should be set back from these structures by at least one mile; the document contains no new strategies for resolving problems with old wells or long-term monitoring of newly abandoned oil and gas well infrastructure.

Therefore, I submit that the most significant aspect of environmental cost related to the natural gas industry in New York State has been completely omitted from consideration in the rdSGEIS.

I believe this combination of exaggerated economic benefit and underestimated environmental cost in the revised draft SGEIS deserves our most sober consideration. Thank you very much for your attention.

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<sup>4</sup> John Salka, Supervisor, Town of Brookfield, Madison County, NY (August 18, 2011); Private Communication.

<sup>5</sup> Chris Miller (September 8, 2011), “Summary of David Eddy Complaint”; DEC/DMN internal document obtained through FOIL request.

<sup>6</sup> Department of Environmental Conservation (August 2011), “2011\_Priority\_Plugging\_List”

<sup>7</sup> “New York State Oil, Gas and Mineral Resources, 2008”, New York State Department of Environmental Resources Division of Mineral Resources.[http://www.dec.ny.gov/docs/materials\\_minerals\\_pdf/08anrpt1.pdf](http://www.dec.ny.gov/docs/materials_minerals_pdf/08anrpt1.pdf)