

2806

RECEIVED

FEB 19 2010

INDEPENDENT REGULATORY
REVIEW COMMISSION

From: Terry Collins [tc1u@andrew.cmu.edu]
Sent: Thursday, February 11, 2010 6:42 PM
To: EP, RegComments
Subject: Comment on the 2010 DEP TDS Proposed Discharge Limits from Terry Collins

Comment on the 2010 DEP TDS Proposed Discharge Limits from Terry Collins, Thomas Lord
Professor of Chemistry and Director, Institute for Green Science, Carnegie Mellon University

While the DEP's stated goals are entirely appropriate, I find the 2010 DEP TDS Proposed Discharge Limits to be inadequate for protecting public health and the environment where they relate to gas mining.

TDS is a very blunt instrument for regulatory control of the gas mining industry. It covers chemicals that are harmless and chemicals that are deadly, simply because they are soluble in water. In the conceivable cases that components of the TDS could be radioisotopes or endocrine disruptors, the 0.05% monthly allowable average limit would represent a hugely hazardous waste stream.

A reading of the Plain Language Summary and the PROPOSED RULEMAKING [25 PA. CODE CH. 95] Wastewater Treatment Requirements [39 Pa.B. 6467] and the linked documents show that only a handful of toxic substances are to be given specific limits. The specified standards aim largely to limit the releases to Pennsylvania's waters of toxicants that the fracking process might free up from underground geologic repositories. With respect to these goals, MANY additional potent toxicants can be expected to be present in the shale and other impacted formations and could reasonably be anticipated to be released to the retrieved fracking waters. These should be specifically acknowledged and individually regulated. Some of them, such as the radioisotopes, are vastly more hazardous on a molar basis than the specified toxicants that the Proposed Discharge Limits aim to control.

But in addition to toxicants released from geologic formations, approximately 300 chemicals are known to have been used at various times by the gas miners in fracking. Pennsylvania's list seems to be incomplete. In New York State's Draft report entitled "Supplemental Generic Environmental Impact Statement On The Oil, Gas and Solution Mining Regulatory Program", many of the actual chemicals disclosed to the State of New York as being fracking additives are exceptionally toxic. These toxicants should never be permitted for fracking purposes. The industry cannot guarantee that they will not turn up in our waterways. Moreover, many fracking formulations are labeled with tradenames that camouflage from the public what might be turning up in their waterways and perhaps their drinking water. Listing examples of what is in the various formulated products is totally unacceptable as the hazards are compound specific. We must have transparency and the public must know the identity of every chemical permitted in formulations.

The fact that the methane is making it to people's taps already in Pennsylvania strongly suggests that fracking chemicals will make it into drinking water also. The Commonwealth does not have and could only acquire at great expense the ability to measure the compositions of in-use fracking fluids through a real-time investigative process. How can the DEP do its job properly and the public be informed adequately, such that it can have confidence in its own DEP, if myriad chemicals are to be pumped underground and partially brought back to the surface incognito where the primary controlled parameter is simply the TDS in the recovered fluids at the time of discharge? Carcinogens, either from the fracking chemicals or from the geologic formations, could easily be present in the recovered fracking waters. Worse, developmental disruptors could be present. Members of this class of toxicants can irreversibly impair developing aquatic creatures, animals and humans at trace quantities and

we must be sure that none are present in the fracking formulations before permitting their use.

If the industry is totally confident that its fracking and waste treatment practices are safe, as it constantly asserts, then ask it to validate its confidence by waving in the Commonwealth the pass it got on the Clean Water Act and other federal acts aimed at protecting the nation's water

We need to remember that after the wells are put in place, the gas will be exhausted at each in various times depending on the specific case. But in a matter of years or decades, we will have thousands upon thousands of abandoned gas wells. The concrete pipes coming to the surface will decay as in all likelihood, residual positive pressure or newly forming pressure pushes the chemicals relentlessly anywhere it can. The fractured earth will find its own unpredictable ways of returning the fracking waters to the surface. This will likely result in a hemorrhaging of legacy fluids into surface formations and water out into the foreseeable future. Does our government see ahead of the immediate future and understand this? Is the DEP prepared to monitor and somehow (although only God knows how) mitigate the resulting pollution, perhaps for centuries to come? Won't a TDS standard for point sources be completely irrelevant over most of the lifetime of pollution threat? The miners will cap the wells and depart.

The people will have the problems thereafter.

The scope of the Proposed Discharge Limits is inadequate in another key way. It focuses on identifiable sources of discharges, such as recovered fracking waters. In the case of gas mining, most of the fracking chemicals will remain underground and may eventually make their way to our environmental waters via unknown pathways. Reacting to this would require additional regulatory strategies and activities that will unreasonably burden Pennsylvanian taxpayers. So instead of playing a wasteful cat and mouse game with the industry, we need to be sure the fracking chemicals are not hazardous before they are used. We need to know what they are in composition and concentration at all times.

Can you explain to the citizens of the Commonwealth how you propose to ensure that a monthly average TDS limit will not be easily gerrymandered. It seems plausible that gas miners could discharge heavily contaminated fracking fluids to receiving waters and then reduce the publicly stated discharges simply by pumping fresh water through the discharge source for a while without doing any other treatment. This would clearly subvert the health and environmental protection goals the DEP is aiming at. The limits should be constantly applied.

Thus I make the following recommendations for improving the Proposed Discharge Limits:

(i) The Commonwealth will insist that the composition of any formulated fracking product will be fully disclosed. It should include an accurate formula identity for each and all constituent chemicals as well as specific concentrations used in the injected fracking fluids for any and all constituent chemicals. The disclosures will become readily available public knowledge prior to its use such that toxic substances do not enter into the TDS space from the industry's actions in the first place. The gas miners will share this information with the landowners

(ii) The Commonwealth will permit formulation of fracking fluids only on a chemical-by-chemical basis.

(iii) In addition to using the TDS, the DEP will greatly expand its list of regulated toxicants to include all that might reasonably be expected to occur in the Shale, including all the toxic elements, and will set specific limits for each.

(iv) TDS limits and specific contaminants limits will be set by the DEP that are not averages, but that are constantly applied so as to ensure that appropriate treatments are enacted on recovered fracking waters—dilution is not a solution to pollution and it will be strictly forbidden.

Terrence J. Collins, Ph.D., Hon FRSNZ

Thomas Lord Professor of Chemistry

and Director, Institute for Green Science Department of Chemistry Carnegie Mellon
University 4400 Fifth Avenue Pittsburgh, PA 15213