



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECRETARY

November 9, 2012

The Honorable Jesse White
Pennsylvania House of Representatives
House Post Office 202046
Harrisburg, PA 17120-2046

Dear Representative White:

There are a few more issues about laboratory testing and the Department of Environmental Protection (DEP) protocols that I would like to explain to you as you continue to misapprehend the facts. The first issue concerns Environmental Protection Agency (EPA) Test Method 200.7. The second question relates to the Thomas Hayes study for the Gas Technology Institute entitled "Sampling and Analysis of Water Streams Associated with the Development of Marcellus Shale Gas" (Hayes Report). I have reviewed those questions with our environmental professionals. I will discuss EPA Test Method 200.7 first.

At the outset it is quite wrong of you and the personal injury plaintiffs' lawyers to continue to say that DEP personnel testified that there is some sort of improper withholding of information or incomplete investigations by DEP oil and gas program personnel. That is not what their testimony is and I think both you and the plaintiffs' personal injury lawyers know it. In fact, when Ms. Upadhyay was asked the leading question in her deposition by plaintiffs' personal injury lawyers, "so there's never a situation where the DEP Bureau of Labs themselves would hold back any analysis of any compounds they found that were requested" she answered confirming that would not be so by responding, "no".

The attempted comparison and linkage of laboratory protocols found in EPA Test Method 200.7 to field investigations of whether oil and gas operations have impacted a local water supply as a basis to suggest that something is being withheld is not appropriate. There seems to be quite a fundamental misunderstanding of the relationship between EPA Test Method 200.7 and what our oil and gas professionals do when they are conducting an investigation.

EPA Test Method 200.7 is not a method for determining whether oil and gas operations have impacted a water supply and EPA does not consider it that either. On the contrary, EPA Test Method 200.7 is a recognized and approved testing methodology a laboratory uses to determine the concentrations of metals in drinking water or wastewater samples. The results from running Test Method 200.7 on a batch of samples may ultimately be used by the field staff for different purposes, depending on the reason the samples were submitted and what Standard Analysis Code (SAC) was requested for the specific sample set.

When DEP's O&G program asks the Bureau of Laboratories to conduct an analysis of a water supply using SAC 942 or SAC 946, the laboratory must use consistent established methodologies to test for metals and other parameters. EPA Test Method 200.7 "Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emissions

Spectrometry” revision 4.4, is such a recognized methodology. EPA Test Method 200.7 provides an analysis for a water supply sample by analyzing for the levels of 24 metals (or “inorganics”). DEP determined, when developing SAC 942, that 8 of these 24 metals are germane to initially determining whether drilling has impacted a water supply. Regarding metals, only results for these 8 metals are quality controlled and verified for accuracy. Other generated data are not verified for accuracy and not reported. This approach is similar to that used in other states, such as New York, Ohio, Colorado, Michigan and Wyoming. In September 2011, DEP added other parameters to SAC 942 when it created SAC 946 (i.e. arsenic, zinc, lithium, selenium, total suspended solids, sulfate and turbidity).

As mentioned, EPA Test Method 200.7 provides for detection of 24 metals. For an investigation into whether oil and gas operations have impacted a water supply, DEP’s Oil and Gas program has historically and consistently used SAC 942 which means the Lab will do the quality control only for the 8 metals in SAC 942. Those 8 parameters are the ones that in the judgment of the oil and gas program will help answer the question that their investigation poses. The lab results for the other parameters, not being the ones that our professionals have determined are the ones that will assist at that point in time in answering the question of their investigation, are not quality controlled. Thus, the results for those parameters are, by definition, not reliable and no laboratory, whether private or government, would consider them to be so.

So the attempt to link EPA Test Method 200.7 to SAC 942/946 to suggest a “withholding” of information is a red herring and a lawyer’s construct to attempt to suggest impropriety in the context of their personal injury litigation and it bears no relationship to the facts.

With respect to the Hayes Report, it is simply not factual to assert that by using the SAC procedure, as opposed to obtaining a quality-controlled analysis of all 24 metals tested for by EPA Test Method 200.7, DEP is “denying itself the full test result information to form a scientific conclusion as to whether an individual’s water was impacted by drilling operations.” That is not even what the Hayes Report itself says and the Hayes Report does not support this assertion.

This Hayes Report study conducted sampling and analysis of an extensive set of parameters in flowback water from Marcellus Shale gas operations in order to fully characterize and identify the constituents of interest associated with flowback water. But the Hayes Report does not suggest that an investigation into whether oil and gas operations have impacted a local water supply must include all of the parameters analyzed in that report. In fact, how to conduct an investigation of that sort was not even the subject of the Hayes Report. The purpose of the Hayes Report was to characterize and identify constituents of interest. The study did not examine the composition of water supplies impacted by gas drilling but instead the composition of water used in gas drilling.

In fact, the Hayes Report would refute the contention that these other parameters would be “critical” for determining whether oil and gas operations have impacted a local water supply. One of the results of the Hayes Report was the finding that heavy metals that are of concern in

urban industrial wastewaters and POTW sludges, such as chromium, copper, nickel, zinc, cadmium, lead, arsenic and mercury, are actually at very low levels in Marcellus flowback water.

Moreover, the Hayes Report affirms DEP's position that the metal parameters reported in SAC 942/946 analyses are the most appropriate in making a determination in an oil and gas investigation into a potential impact to a water supply from a gas operation.

Several points in the Hayes Report are illustrative and worth noting in this regard. For example, the Hayes Report compares the range of levels of several metals that were detected in influent water (water containing hydraulic fracturing additives that was going to be used in drilling) and flowback water (influent water that then returned to surface five days following hydraulic fracturing). The comparison shows that the range of the levels of some metals increased in flowback, but also existed in the influent. Notably, barium, calcium, potassium, sodium and strontium demonstrated the largest increases in their respective median detected level and are present at the highest concentrations in flowback water. These five parameters are also, not coincidentally, reported back in the SAC 942 analysis.

In section 4.0 of the Hayes Report entitled, "Implications for Fate and Transport," Hayes concludes that "the information base developed in this project strongly suggests . . . that monitoring should be focused on measuring constituents that are likely to be present." The report further notes "a number of observations that are relevant to fingerprinting and to the fate and transport of constituents." Because non-metallic organic compounds such as BTEX and naphthalene are found at "modest concentrations (most compounds below 1 ppm) . . . [t]he challenge," wrote Hayes, "is to choose an alternate parameter that can be used to quickly detect any small release of flowback water."

The Hayes Report goes on to say that chloride "is usually present in relatively high concentrations ranging from 10,000 to 200,000 mg/L, [which is] ten to a hundred times the concentration of most inorganics," consistent with the above discussion of the high concentrations of barium, calcium, potassium, sodium and strontium and relatively low concentrations of the other metals, "chloride . . . has considerable potential as an early sentinel indicator of flowback water impacts . . . [and is] an excellent monitoring tool for even the smallest leaks of flowback water into the environment." Again, chloride is one of the parameters reported in the SAC 942 Code.

Finally, the Hayes Report concludes that "shale gas flowback water cations are dominated by sodium and calcium; anions are dominated by chloride." It is clear that if any parameters are "critical" in making a determination, they are chloride, barium, calcium, potassium, sodium and strontium – all of which are reported back in SAC 942/946 analyses. Hayes shows that other constituents and parameters are found in many other industrial activities and waste and, thus, cannot be relied upon as primary indications of oil and gas activities as you conclude.

The validity of our laboratory practices in these investigations was also recently affirmed by third party experts quoted in a November 3 Tribune Review article. A copy of this article is enclosed.

In the article, David Yoxtheimer, a hydrologist at Penn State University, is quoted as saying: "They could have 100 different (contaminants) from an analysis, but they're going to report what's related to what they're trying to investigate That's pretty much standard industry practice."

Radisav Vidic, a civil and environmental engineer at the University of Pittsburgh, is quoted as saying: "If tests don't show those chemicals – including barium, strontium and calcium – then it's unlikely drilling is at fault, no matter what other chemicals show up."

Again, as with the EPA Test Method 200.7 situation, the attempt by the plaintiffs' lawyers litigating their personal injury case to make it sound like the Hayes Report says that our oil and gas investigations are incomplete is incorrect. To the contrary, the Hayes Report provides support for the methodology DEP uses to do its investigations.

So it is quite clear there is neither improper withholding of information or incomplete investigations by DEP oil and gas and laboratory personnel happening and such assertions are false and not based in fact. Moreover, the DEP personnel did not say what you and the plaintiffs' personal injury lawyers assert. It inappropriately undermines public confidence, as well as your own credibility, when you make such misrepresentations about the nature of the testimony of DEP personnel.

Respectfully,



Michael L. Krancer
Secretary

Enclosure