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To the Westchester County BOL,

I support the resolution before the BOL on the Spectra pipeline. There is a need for an independent review of the project. The answers provided by Spectra to the BOL are evasive on the issue of radon decay products that accumulate in the pipeline. These deposits will be removed at the proposed "pigging" facility in Yorktown.

"Pigs" are like big bottle brushes. They travel through the pipe, cleaning the inside of the pipe of scale and black powder. The black powder is a corrosion product. The pigs would be removed at Yorktown because Yorktown is at the end of the 42 inch diameter gas pipeline. The black powder would also be removed with the pigs. Gas pipelines can produce tons of black powder.

Pigging for the cleaning of gas pipelines may be done every six months to one year. Tons of material can be removed at one time. (Reference 1) In Ref 1, the authors say: "All aforementioned pigging operations removed a combined total of 11,620 kg of black powder." This is 12.8 tons. The pigging operation is an industrial facility, which should not be placed in a populated area.

There is a serious concern with radioactivity. Uranium in the Marcellus shale, where the natural gas comes from, decays into radium. The radium then decays into radon gas, which is carried down the pipe with the natural gas. This is the same radon that we check our houses for. If we detect radon gas in our basements, we can install ventilation. The pipeline is different. When the radon gas decays, its decay products build up on the inside of the pipe. These are radioactive lead-210 (22 year half life) and polonium-210 (138 day half life).

Spectra uses careful language in their answer to the Westchester BOL. They say that they are not "aware" of radioactive deposits. The material inside the pipeline should be analyzed by an independent lab. If there is radon in the pipeline, as Spectra admits, there will be radioactive lead and polonium decay products in the residue. (Reference 2) .

The pipeline confines and concentrates the radioactive decay products. The radioactive lead and polonium residues are embedded in the black powder. When the black powder is cleaned out the radioactive decay products that are embedded in it are also removed. The powder consists of one-micron size particles which provide a perfect medium for dispersing the radioactive material.

If we breathe or ingest the radioactive lead or polonium, we risk cancer. There is no safe amount. I do not think that we should expose ourselves to this risk.

Reference 1. Tsochatzidis, Nikolaos A., and Konstantinos E. Maroulis. "Methods help remove black powder from gas pipelines." *Oil and Gas Journal* 105.10 (2007): 52.

Reference 2. Godoy, José Marcus, et al. "210Pb content in natural gas pipeline residues ("black-powder") and its correlation with the chemical composition." *Journal of environmental radioactivity* 83.1 (2005): 101-111.



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