

**New York State Department of Environmental Conservation**

**Division of Materials Management, Region 8**

6274 East Avon-Lima Road, Avon, NY 14414-9516

Phone: (585) 226-5411 • Fax: (585) 226-2909

Website: [www.dec.ny.gov](http://www.dec.ny.gov)



January 14, 2011

Mr. Vincent Spagnoletti  
Commissioner  
Steuben County Department of Public Works  
3 East Pulteney Square  
Bath, New York 14810

Re: Marcellus Shale Drill Cuttings  
Disposal in New York State Landfills

Dear Mr. Spagnoletti:

In your letter received by the Department dated December 14, 2010, you state that Steuben County has received requests to accept drill cuttings from natural gas production in the Marcellus Shale formation for disposal at its Bath Landfill. Your letter requests a statement from the New York State Department of Environmental Conservation (NYSDEC) regarding such disposal. NYSDEC has evaluated the regulatory and technical issues involved with this question and has determined that, as described below, disposal of these drill cuttings in permitted landfills is consistent with regulatory requirements and the protection of the environment. Based on this, there are at least three landfills in New York State's southern tier that currently accept this waste stream for disposal. Others are considering doing so.

The waste stream discussed here, which has been reviewed by NYSDEC and determined acceptable for landfill disposal, is limited to drill cuttings from natural gas production wells. Drill cuttings consist of ground-up rock generated from drilling down (and in the case of horizontal wells, out) through the layers of subsurface rock. The ground-up rock cuttings emerge from the boring in a slurry containing the rocks plus carrier fluids added during drilling. The drilling techniques currently in use, utilize either air and water-based fluids or oil-based fluids for this purpose. Air/water-based drilling utilizes surfactants; oil-based drilling uses synthetic or vegetable-derived oils. After recovery, the majority of the fluid is extracted from the drill cuttings for reuse, and cuttings are "bulked-up" with cement kiln dust, sawdust or lime to bring the solids content up to levels acceptable for handling and disposal. Note that this drill cuttings waste stream is generated during the initial drilling of the bore hole, and is unrelated to any hydro-fracturing or other gas production techniques which may occur subsequently in the hole.

An analysis of all applicable regulations concludes that drill cuttings, as defined above, are not prohibited from disposal in permitted New York State landfills.

- Federal Title 40 Part 261.4(b)(5) excludes wastes associated with the development or production of natural gas from being identified as hazardous waste.

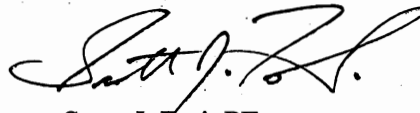
- In New York State's solid wastes regulations, Part 360-1.2(b)(88) excludes gas drilling wastes from being defined as industrial waste.
- New York's radioactive waste regulations are contained in the Part 380 series. Drill cuttings, as defined above, may contain naturally occurring radioactive materials (NORM), low level radioactivity which is present naturally in most shale rock, including the Marcellus formation. The Part 380 series references NORM in three locations, where it states that the rules addressing radioactive waste do not apply to NORM or materials containing NORM unless they have been processed and concentrated. See Part 380-1.2(e); Part 382.1 (c)(5) and Part 383-1.1(b)(5). Since the NORM is not processed and concentrated in the drill cuttings waste stream, drill cuttings are not radioactive waste under regulation.
- New York's solid waste regulations address disposal in permitted landfills in Part 360-1.5, where it is stated that waste streams defined as hazardous waste or radioactive waste are prohibited from disposal in a Part 360 landfill such as Steuben County's Bath Landfill. Since it has been shown that the regulations do not classify this waste stream as hazardous or radioactive waste, Part 360-1.5 allows its disposal in permitted landfills.

To answer any technical questions regarding the compatibility of this waste stream with disposal in New York's Part 360 permitted landfills, NYSDEC evaluated sample results from drill cuttings collected at the drilling operations where they were generated, and from cuttings delivered to landfills for disposal. Samples were analyzed for chemical and radiological constituents. The evaluation determined that neither the chemical composition nor radioactivity present made the drill cuttings waste stream incompatible with safe disposal in a permitted landfill. In fact, the average radiation level in the drill cuttings was found to be less than half that allowed by USEPA for soils from uranium mill cleanups intended for unrestricted use.

If Steuben County decides to accept drill cuttings for disposal at its landfill, NYSDEC offers the following management considerations. For drill cuttings generated in the oil-based drilling operations, a landfill should request and review analytical results, and provide prior approval before accepting for disposal, similar to the process for accepting industrial waste. Oil-based drill cuttings should be transported by haulers with Part 364 transporter permits. Techniques for placement of this waste at the landfill's working face should account for the fact that drill cuttings are much more dense than compacted MSW. Lastly, NYSDEC will request that the County track the tonnage of drill cuttings received, and include it as an additional category in the waste totals reported to NYSDEC.

If there are further questions on this subject, please contact me at (585) 226-5408 or by email at [sjfoti@gw.state.ny.us](mailto:sjfoti@gw.state.ny.us).

Sincerely,



Scott J. Foti, PE  
Regional Materials Management Engineer

cc: M. Alger, Steuben County  
J. Hauryski, Steuben County  
M. Amann, NYSDEC