



**ATTACHMENT B**  
**To East Penn Township Notice of Appeal**

Jarecki, Paul

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**From:** Derstine, Terry  
**Sent:** Wednesday, March 02, 2011 4:04 PM  
**To:** Jarecki, Paul  
**Subject:** FW: Johnstown WWTP biosolids

Keep in mind that the disposal guidelines below are not our regulations.

**Terry W. Derstine** | Radiation Protection Program Manager  
Department of Environmental Protection  
Southeast Regional Office  
2 East Main Street | Norristown, PA 19401  
Phone: 484.250.5854 | Fax: 484.250.5951  
[www.depweb.state.pa.us](http://www.depweb.state.pa.us)

-----Original Message-----

**From:** Derstine, Terry  
**Sent:** Wednesday, January 26, 2011 2:03 PM  
**To:** Dudley, Keith; Everett, Alan; Sansoni, Nancy; Haneiko, Andrew  
**Subject:** RE: Johnstown WWTP biosolids

Hi all:

What we're primarily concerned with is the concentration of Radium-226. Based on the chart below, we had a high of 7,000 pCi/kg and an average of around 4,000 pCi/kg. Most of limits are expressed in pCi/g, so we're talking **7 pCi/g** as a high and **4 pCi/g** average.

Radium exists naturally in soil, rocks, surface water, groundwater, plants, and animals in generally low concentrations – on the order of one part per trillion, or 1 pCi/g.

**Some generic limits for Ra-226:**

Dust, Debris, or Recyclable Materials Limits - 5 pCi/g of radium-226 **above the natural background concentration.**

Surficial Soils Limits -5 pCi/g of radium-226 **above the local background concentration.**

Disposal Guidelines

1. For disposal of radium-226 contaminated materials in the form of bulk waste, such as contaminated soil or contaminated debris, materials containing a radium-226 concentration not exceeding 50 picocuries per gram, averaged over any single shipment, can be accepted in a landfill.
2. For disposal of radium-226 contaminated waste materials at concentrations above 50 picocuries per gram, the contaminated wastes should be transferred to a licensed radioactive waste disposal facility.

I wouldn't be too alarmed about the concentrations below, but it is something that we should definitely keep an eye on.



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-----Original Message-----

**From:** Dudley, Keith  
**Sent:** Wednesday, January 26, 2011 1:09 PM  
**To:** Everett, Alan; Sansoni, Nancy; Haneiko, Andrew; Derstine, Terry  
**Subject:** RE: Johnstown WWTP biosolids

Thanks Alan.

Terry - looks like frac water may be contributing some level of radioactivity to treated sewage sludge that is being land applied as a fertilizer amendment. Can you take a quick look at the numbers in the data below and let us know if this concerns you?

Thanks, Keith

-----Original Message-----

**From:** Everett, Alan  
**Sent:** Wednesday, January 26, 2011 12:14 PM  
**To:** Sansoni, Nancy  
**Cc:** Dudley, Keith  
**Subject:** FW: Johnstown WWTP biosolids

Nancy,

My counterpart in SC sent this along. Data might be of interest. Particularly if we start seeing frac water in the region.

alan

-----Original Message-----

**From:** Sweeney, Thomas  
**Sent:** Wednesday, January 26, 2011 11:50 AM  
**To:** Schott, Robert; Sigouin, Mark  
**Cc:** Laur, Eric  
**Subject:** Johnstown WWTP biosolids

From sludge samples collected by my counterpart in SWRO. This facility takes frac water. The sludge is lime stabilized then land applied. We have one farm in Bedford Co. that received some this past year. We have no standards for Ba or Sr. We have no standards because EPA set standards based on what was typically found in municipal sewage sludge. A sample I took from Lititz had a Sr concentration of 94 mg/kg and Ba of 183 mg/kg.

10,000mg/kg is 1% by weight.

Pre-lime

	Strontium mg/kg	barium mg/kg
11/3/2008	2,602	13,813