

WEF Residuals and Biosolids Committee

Outreach and Education Subcommittee

RBC Specialty Conference 2009

Portland Convention Center

Portland, OR

Monday, May 4, 2009 4:00 – 5:00 pm **Room A109**

Rhonda Bowen, *Chair* Diane Gilbert, *Vice-Chair*

AGENDA

1.	Introduction and Welcome	R. Bowen
2.	Review of Agenda	R. Bowen
3.	Review of WEFTEC 2008 Conference Minutes	R. Bowen
4.	Mission and Goals – Do they need Updating?	R. Bowen
5.	VA Biosolids Council Expert Panel Final Report	R. Bowen
6.	PA Biosolids Issues	R. Bowen
7.	Decatur AL Biosolids Update	M. Meckes
8.	WEF Biosolids Activity Updates	
	a. Kern County Litigation Update	D. Gilbert
	 WEF Biosolids Access Water Knowledge Channel 	S. Hadeed
	 Boxer Senate Briefing on Biosolids 	S. Hadeed
9.	Fact Sheets Update/Work Groups	R. Bowen
	a. Collaboration with NACWA on Dioxins/Microconstuents in	
	Biosolids	B. Bastian
	 b. Final Draft Radioactivity in Biosolids 	D. Gilbert
	 Microconstituents in Biosolids July Conference Update 	R. Bowen
10	Next Meeting - WEFTEC 2009 - Orlando, FL Oct. 10-14, 2009	S. Hadeed
11.	Other Business	R. Bowen

12. Adjourn



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MINUTES

Introduction and Welcome

Subcommittee Chair Rhonda Bowen welcomed the committee attendees and asked attendees to introduce themselves and their interest in biosolids. The agenda and minutes from the WEFTEC October 2008 Conference Outreach and Education subcommittee meeting in Chicago were distributed. Each attendee introduced themselves and who they were representing.

Review of Agenda

The agenda was reviewed and two additional items were added: Mission and Goals of the Subcommittee and Encouraging Young Professionals to participate in the RBC.

Review of WEFTEC 2008 Conference Minutes

The minutes were reviewed and a motion to approve was seconded by Mike Moore.

VA Biosolids Expert Panel Final Report

Rhonda discussed the results of the December 2008 report issued by the Virginia Biosolids Expert panel, an activity that she had been participating for more than one year. The panel decided that based on information presented and reviewed, that they were unable to conclude there were problems with land application of biosolids but noted that additional research needs to be continued. A set of recommendations were proposed in the report along with a need to update the regulations in VA.

Action: Use the recently developed RBC LISTSERV to publicize the VA Biosolids Expert Panel Report and the Toledo, OH Biosolids Health Fact Sheet.

PA Biosolids Issues

Jimmy Slaughter from Beveridge & Diamond law firm provided a summary report on the toxic tort litigation taken place in York, PA (Gilbert vs. Synagro). The litigation focuses on reported health effects claims by the plaintiffs. The suit's premise is that biosolids are

inadvertently toxic for land application. Synagro has filed a motion to dismiss the case, but the case probably will stay in the court for two years. The Mid-Atlantic Biosolids Association has posted information on the PA litigation at: <u>www.PAbiosolids.com</u>.

Decatur, AL Biosolids Issues

Mark Meckes from U.S. EPA gave an update on the Decatur, AL on the elevated ground water levels and biosolids of persistent bioaccumlative compounds (PFOA) and other polyfluorinated compounds that are used in producing Teflon products. A health advisory was issued last year after EPA conducted limited testing at the Decatur wastewater treatment facility. EPA believes that the levels found are not a major concern. The source of these compounds may be tied to local industry sources Dupont and 3M. A Part 503 risk assessment was not done for these compounds and may be undertaken. Jimmy Slaughter suggested that environmental pathways other than biosolids need to be evaluated as the potential source of the drinking water contamination. A class action lawsuit was filed and may proceed to trial in the next couple of years. EPA is working with Region IV and may issue a press release in the near future.

Action: The Outreach & Education Subcommittee should issue some communication to the full committee as more details are learned on this issue.

Kern County Litigation Update

Jimmy Slaughter provided a brief update on the status of the Kern County litigation. The Green Acres Farm where the City of Los Angeles land applies biosolids will remain open during the litigation. The litigation is expected to go to the court of appeals sometime in 2010.

WEF Biosolids Activity Updates

Sam Hadeed briefed the subcommittee on the status of the Sen. Barbara Boxer statement last year that she would seek a hearing on the safety of land application of biosolids. There has been no indication that this matter has gained any ground on the Hill given the focus on the economic recovery and stimulus activities.

Sam also provided a summary of other WEF-related biosolids activities. A biosolids access water knowledge channel has been created since WEFTEC 2008 and maintains WEF information related to biosolids and hosts the RBC meeting materials for the specialty conference and WEFTEC meetings. A new RBC LISTSERV was also created to facilitate communication among the committee in addition to the biosolids discussion forum. RBC members are also receiving the weekly National Biosolids Partnership e-newsletter and WEF biosolids updates. As a value-added benefit to the RBC members, WEF is providing its weekly This Week in Washington e-newsletter that provides current regulatory and legislative updates of interest to the water and wastewater communities.

Fact Sheets Updates

Rhonda Bowen provided copies of the recently completed fact sheet on radioactivity guidance for wastewater treatment facilities that was based on the long term join EPA and National Regulatory Commission study on sources of radiation at treatment plants.

Action: The fact sheet will be posted in the Biosolids Access Water Knowledge channel of the WEF web page.

Collaboration with NACWA on Dioxins/Microconstituents in Biosolids

Rhonda indicated that there have been on-going discussions with the National Association of Clean Water Agencies of the development of a fact sheet on dioxins. The discussions have been broadened to include other legacy pollutant issues that are not limited to dioxins. Members of the Outreach and Education Subcommittee have also been involved in a biosolids session during the WEF July 2009 Conference on Microconstituents that will be held in Baltimore, MD.

Next Meeting

Sam Hadeed mentioned that the next meeting for the subcommittee will be held during WEFTEC 2009 in Orlando, FL from October 10-14.

Other Business

Each subcommittee was asked to explore ways to encourage young professionals to be more involved in WEF residuals and biosolids events. The economic climate and limited opportunities for these 35 and under professionals has been a problem. During WEFTEC in Orlando, Vice-Chair Todd Williams plans to attend the Young Professionals Workshop and speak about how they can get involved.

Adjourn

The meeting adjourned at 5:15 pm.



WEF RESIDUALS & BIOSOLIDS COMMITTEE OUTREACH AND EDUCATION SUBCOMMITTEE MONDAY, MAY 4, 2009 ATTENDEES

<u>NAME</u> ADDRESS

AFFILIATION

EMAIL

Mark Meckes Michael Moore James Slaughter Bob Forbes (for T. Williams) Paul Carbary Bob Bastian Sam Hadeed Rhonda Bowen Mark Rangan Steve Frank

U.S. EPA OCSD Beveridge & Diamond CH2M Hill Alexandria Sanitation Authority U.S. EPA WEF HRSD City of Portland, OR Metro Denver meckes.mark@epa.gov mmoore@ocsd.com jslaughter@bdlaw.com bob.forbes@ch2m.com pcarbary@alexsan.com bastian.robert@epa.gov shadeed@wef.org rbowen@hrsd.org markr@bes.ci.portland.or.us sfrank@mwrd.dst.co

RADIOACTIVITY FACT SHEET



Issue: Can radioactive material concentrate in biosolids and incinerator ash and pose a threat to the health and safety of workers or the public?

Answer: Based on studies and available information the levels of radioactive materials detected in biosolids and incinerator ash indicate that at most POTWs, radiation exposure to workers or the public is very low and is not of concern.

What is radioactivity?

Radioactivity is the property possessed by some elements (such as uranium) or isotopes (such as carbon-14) of spontaneously emitting energetic particles (such alpha particles, beta particles, or gamma rays) by the disintegration of their atomic nuclei.

Why is radioactivity a concern?

Radioactive materials include natural and man-made radioisotopes. These radioisotopes emit energetic particles that can affect human health. On an average 80 percent of human exposure to radiation comes from natural sources such as radon, radium, and potassium-40. The other 20 percent comes from man-made sources, primarily x-rays.

Why is radioactivity of interest to wastewater treatment operations?

Radioactive materials are a component of the natural environment and are also concentrated or produced through human activities. Generally, the presence of radioactive materials is a concern only when concentrations become sufficiently elevated above normal background levels. The release or use of radioactive materials could result in elevated levels entering the treatment plant resulting in concentration levels that could and potentially pose a health risk and impact the ability of a POTW to use or dispose of the biosolids or ash.

What are the likely sources of radioactive materials entering the POTW?

There are three general sources of radioactivity in our environment that may enter wastewater treatment systems:

- 1. Naturally-occurring radioactive materials (NORM) are natural sources of radiation, and include geologic formations and soils that contain uranium, radium, radon, and other nuclides that are radioactive. NORM can be either dissolved in or attached to suspended solids in the water.
- 2. Technologically-enhanced naturally-occurring radioactive materials (TENORM) may be introduced into the sewer system from ground and surface water, plants and food, and industrial dischargers.
- 3. Man-made sources include materials produced for, and as a result of the operation of nuclear reactors and fuel cycle facilities; and produced from accelerators, industrial activities, scientific research, and medical applications. Other man-made sources can result from nuclear accidents, or fallout from weapons testing.

Are these sources regulated?

Yes. The primary division of regulation is based on the origin of the radioactive material. Man-made radioactive materials are regulated differently from NORM and TENORM. The lead agency for the regulation of NORM and TENORM is the EPA. Man-made materials are regulated by the Nuclear Regulatory Commission (NRC) under the authority of the Atomic Energy Act (AEA).

Can radioactivity be found in biosolids or ash?

Yes. National survey results indicated that biosolids and ash samples primarily contained NORM such as radium. With the exception of NORM, most other samples were at or near the limit of detection. Based on the survey results, the levels are generally comparable to what is found in other media such as soil and fertilizer.

Are the levels of radioactive materials potentially present in biosolids or ash considered harmful to the worker or public? No. According to dose modeling evaluations, the levels of radioactive material detected in biosolids and ash indicated that at most POTWs radiation exposure to workers or the general public through biosolids use is very low and consequently, is not likely to be a concern.

Are there any instances of elevated radioactive materials in biosolids or ash?

Yes. Elevated levels of radioactive materials were found in biosolids and ash samples at a few treatment plants. These elevated levels were considered isolated, site-specific instances. Available information indicate that there have not been any known occurrences of such elevated concentrations (those sufficiently elevated above background levels to potentially pose a health risk) of radioactive materials in biosolids and ash since the 1980s. No widespread public health concern has been identified because no excessive concentrations of radioactivity have been observed in biosolids or ash.

RADIOACTIVITY FACT SHEET



When should a POTW test its biosolids or ash for radioactive materials?

First, the facility or POTW should contact their State Radiation Control Agency and the EPA regional radiation program managers to help determine if significant sources of NORM or TENORM are present in their service area. Potential licensed sources of man-made radioactive materials using radioactive materials that may be discharged to the sewer system should also be indentified and contacted to determine if they are discharging radioactive materials or if any accidental releases have occurred.

If potential or actual radioactive sources are identified what actions should a POTW take?

The facility should determine if monitoring or sampling of the biosolids or ash is required based on the identified or potential sources in the service area. The following questions should be used to assess if sampling or monitoring is necessary:

- 1. Have elevated levels of uranium and radium occurred in soils, bedrock, or groundwater in their service area?
- 2. Are there drinking water treatment plants located in the service area that may discharge residuals into the sewer system from treatment of source water to comply with EPA drinking water levels for radium, and uranium or for alpha and beta emitting radionuclides?
- 3. Are there industrial facilities (such as ceramics, electronics, minerals or metal fabrication, paper and pulp, metal foundry and engine manufacture, munitions and armament manufacturing, luminous watch and clock manufacture, cement or concrete, optics, electric lighting, gypsum board manufacture, welding, paint and pigment, or fertilizer manufacture) located in the service area that discharge significant quantities of untreated process wastewater into the sewer system? All of these industries have been associated with the use of TENORM materials or production of TENORM wastes.
- 4. Are there many or significant NRC or state licensees, Department of Energy facilities, or Department of Defense facilities such as medical, medical laboratories, research and development colleges and universities, nuclear laundries, decommissioning facilities for byproducts material facilities, UF₆ production plants, hot cell operations, uranium enrichment plants, or uranium fuel fabrication plants located in the service area that discharge significant quantities of untreated process wastewater into the sewer system?

If a POTW determines that monitoring or sampling is necessary, what type of program should be developed?

An initial gamma scan and gross alpha and gross beta screening determination should be performed. This screening tool is inexpensive and can be useful if further analysis is required. If NORM or TENORM is suspected in the biosolids or ash, a gross alpha and beta screen can be performed. If atomic energy radioactive material is suspected, gamma spectroscopy should be performed. All analysis should be performed on a dry weight basis. To obtain a quick result for radon a short-term test (2 days to 90 days) should be performed. Some detectors that could be used include: "charcoal canisters", "alpha track," "electret ion chamber," "continuous monitors," and "charcoal liquid scintillation detectors." A long-term test (more than 90 days) is more reliable and provides a reading that is more likely to yield the year round average radon level. EPA has developed a **POTW Sludge Sampling and Analysis Guidance Document** "http://www.epa.gov/npdes/pubs/owm012.pdf" that provides sampling information.

How do I evaluate the results from the monitoring or sampling?

The POTW should perform screening calculations and assess the potential exposure to workers at the POTW and potential exposure at the land application sites. (See **ISCORS Technical Report 2004**, Chapter 6 on *How Can A POTW Operator Interpret Levels of Radioactivity Detected in the Plant?* – "http://www.iscors.org/pdf/FinalRecommendations.pdf" – for guidance on conducting screening calculations). The screening process will help identify and address any potential radiological exposures associated with biosolids or ash management practices and will provide guidance for determining whether further actions are needed to ensure public and worker health and safety. The POTW should compare estimated doses to existing regulatory standards when performing the screening process. The screening calculations are based on a dose equivalent of one (1) millirem/year per source or practice. If findings from the screening calculations show an annual dose from all radionuclides detected in the biosolids or ash sample is 10 millirem or less, no further steps are warranted. If the annual dose of the samples evaluated is greater than 10 millirem per year, the POTW should perform additional sampling to further evaluate the results.

What if the annual dose from my screening is greater than 10mrem per year?

If screening calculations suggest that potential doses are greater than 10 mrem per year, the POTW may want to conduct a more thorough evaluation of the levels detected in the biosolids, ash, or indoor air, based on site-specific conditions. The evaluation may involve additional sampling or monitoring, use of modeling scenarios developed by current available dose modeling projects and substitution of actual site-specific input data, creation of more directly applicable modeling scenarios than those used in current available dose modeling projects, or actual physical surveys of potentially affected areas of the POTW or other biosolids or ash management locations. The results of the management locations should be reported to the state radiation control program to determine appropriate standards for comparison.

Where can I get more information?

More information about radioactivity in biosolids can be found at: <u>http://www.iscors.org/subcomms/sewage.html</u> – Look for the documents listed under "**Library**". EPA's Map of Radon Zones can be found at: <u>http://www.epa.gov/iaq/radon/zonemap.html</u>.