To: Tapia, Cecilia[Tapia.Cecilia@epa.gov]; Hammerschmidt, Ron[Hammerschmidt.Ron@epa.gov]; Hood, Rich[Hood.Rich@epa.gov]
From: Gravatt, Dan
Sent: Tue 5/14/2013 11:48:52 AM
Subject: Questions from Harvey Ferdman on West Lake Landfill
U235 Ratio and RA226 228 with Udg Smoldering Event Map.jpg
Miss River and Rulo Combined.jpg
Groundwater Monitoring Report.pdf
Dr Criss - West Lake Rept03142013.pdf
SFS Executive Summary.pdf

What do we need/want to do to respond to this?

Daniel R. Gravatt, PG

US EPA Region 7 SUPR/MOKS

11201 Renner Boulevard, Lenexa, KS 66219

Phone (913)-551-7324

Principles and integrity are expensive, but they are among the very few things worth having.

From: Jefferson, Matthew
Sent: Friday, May 10, 2013 6:19 PM
To: Singletary, DeAndre; Gravatt, Dan; Asher, Audrey
Subject: FW: West Lake Landfill

fyi

From: Harvey Ferdman [mailto:HarveyFerdman@aol.com]
Sent: Saturday, April 27, 2013 10:46 PM
To: Washburn, Ben; Jefferson, Matthew
Cc: Bill.Otto@house.mo.gov
Subject: FW: West Lake Landfill

Matt and Ben,

Thank you for your interest in helping the people effected by the radioactive materials in and around Cold Water Creek and the West Lake Landfill.

I think we all feel for the residence who have been effected by this. With your help, and the help of many more of our government employees and our citizens, I hope we can reduce the risk for those living near the West Lake Landfill and take care of those already suffering negative effects from the weapons waste in the St. Louis area from WW2.

Here's some of the information I have to share with you. I have combined 2 emails together below. The first one (EMAIL 1 below) was sent to both Christopher Clayton (FUSRAP, DC) and Sarah Hatch (EPA Lenexa). The second one (EMAIL 2 below) was sent to Sarah Hatch (EPA) after a conference call with her and the project manager(s) and other staff in Lenexa that are responsible for the West Lake site.

Your assistance is appreciated.

Thanks for your work at the meetings in St. Louis. I think you have given these people hope that their situation will be properly addressed by our government.

Regards,
Harvey

Harvey Ferdman

Policy Advisor to

Missouri State Representative Bill Otto, District 70

St. Louis, MO 63017

314-469-0595

314-761-5100 (cell)

EMAIL 1:

From: Harvey Ferdman [mailto:HarveyFerdman@aol.com]
Sent: Tuesday, April 23, 2013 2:49 PM
To: Christopher.Clayton@hq.doe.gov
Cc: Bill.Otto@house.mo.gov
Subject: West Lake Landfill

Christopher,

Thank you for your time on 4/11/2013 to discuss the possibility of the FUSRAP program taking charge of the West Lake Landfill in Bridgeton Missouri.

Have you had an opportunity to look into this?

Harvey Ferdman

Policy Advisor to

Missouri State Representative Bill Otto, District 70

St. Louis, MO 63017

314-469-0595

314-761-5100 (cell)

Thank you for your time and interest in helping us answer questions raised by our constituents regarding the issues and challenges at the West Lake / Bridgeton Landfill.

Just to make things more interesting, the tornado that hit here on Wednesday evening April 10, 2013 was 3 blocks from the West Lake site, which is also the home of a "subsurface smoldering event" (SSE) less than 1300 feet from the radiologically-impacted materials (RIM) deposits. The SSE is commonly referred to as a dump fire. This SSE is currently growing in size and efforts to control it have become increasing challenging as it spreads.

I have included the following for your review. **I call your attention to Dr. Criss' paper which clearly states that the chemical analysis of the performed by the NRC <u>DOES NOT</u> show the proper ratios of barium to sulfate to indicate that the original RIM was the end product of the process used by Mallinckrodt, but rather, indicates the RIM is much more dangerous than the barium sulfate the EPA states is there. I mention this because all subsequent decisions regarding this site have been based on the assumption that the RIM is barium sulfate.**

Republic Services (current owner of the West Lake Landfill):

Attorney who stated to me that the owner at the time the RIM was placed there did not know it was RIM

Jessica E. Merrigan of Lathrop & Gage LLP. Direct Line: 816-460-5706

JMerrigan@LathropGage.com

Note: It appears the RIM was moved to West Lake in 1973.

Attachments:

West Lake – Inside EPA … pdf

References May 4, 2009 letter from Missouri DNR to acting DPA Region VII Administrator, William Rice to excavate this site (page 8)

States that the West Lake Landfill is not regulated by the NRC (found on Page 2)

States the following (page 3)

A 1988 report by the NRC indicates that the average radium-226 concentration at the West Lake site is about 90 pCi/g, 18 times above the 5 pCi/g ARAR. In addition, the NRC report says radium-226 activity will increase over time, increasing nine-fold over the next 200 years, or 162 times above the ARAR. "This increase in Ra-226 must be considered in evaluating the long-term hazard posed by this radioactive material," the NRC report says.

And, according to a 1982 NRC report, some samples taken at the West Lake site indicate radium-226

concentrations as high as 21,000 pCi/g, or 4,200 times above the ARAR. Relevant documents are available on InsideEPA.com

References a letter from Missouri DNR to EPA Administrator Lisa Jackson against the plan to cap the RIM in place (page 5)

References numerous local governments that have urged removal vs. capping in place (page 5 and others)

U235 Ratio and RA226 228 with Udg Smoldering Event Map.jpg

Ground Water Monitoring Report.pdf

This map and source document for EPA data that shows that ground water in areas of the West Lake Landfill that did not have RIM directly deposited on them are now showing the presence of U235, U238, U234 and RA 226 and RA 228 in amounts greater than the background generally found in this part of our state. The original, unmodified map is found on Page 84 of the Ground Water Monitoring Report dated Dec 2012. I added the data in brown (from Table 6 of the same document) as well as a rough outline of the area that has the "underground smoldering event" (commonly referred to as the fire). Note: The Ground Water Monitoring Report, dated December 14, 2012 was **prepared for EPA by EMSI**.

This raises a number of questions, including the following:

- Does this mean that Bridgeton Landfill (OU-2) is contaminated with radioactive materials? If so, is it possible some of the waste from Latty Avenue was dumped into OU-2 in addition to OU-1?

- The data seems to prove that the groundwater is being contaminated with radioactive materials. This is especially relevant because reports from both the EPA and the PRPs say that the radioactive materials are not affecting the groundwater although it appears that their own data contradicts this conclusion.

Dr Criss – West Lake Rept03142013.pdf

http://eps.wustl.edu/people/bob_criss Dr. Criss appears to be a qualified party to comment on the investigations and subsequent conclusions that the EPA has conducted and arrived at regarding the risk assessment of the West Lake Landfill. His paper (see attachment) details many of his concerns about how the studies were conducted, how the data was interpreted, and the conclusions that were drawn.

Note: Dr. Criss' paper and concerns listed within have become focal point of the surrounding community. It is wise for any solution for the final disposition of the West Lake Landfill to directly address all the issues raised in Dr. Criss' paper or public acceptance of said solution will be in jeopardy

SFS Executive Summary.pdf

This document (Supplemental Feasibility Report dated December 28, 2011) was prepared for the PRPs by EMSI (the same contractor the EPA uses for their analysis). It this paper, they make statements regarding the ground water and other hazards that contradict their own data (see Dr. Criss' paper and U235 Ratio Map). Republic states that their SFS has been "accepted by the EPA".

Dr. Criss' paper and the Executive Summary of the Supplemental Feasibility Report dated December 28, 2011 that was **prepared on behalf of the PRPs by EMSI** and referenced by Republic as having been accepted by EPA. Note that both the EPA and the PRPs are contracting with the same firm (EMSI) for the technical analysis of this site. Republic's statement in conjunction with Dr. Criss' paper have become the cause of great concern in the public's minds regarding checks and balances and objectivity of the reports as well as fueling Dr. Criss' criticism that the proper analysis of the site is not being performed by either the EPA or the PRPs … **since EMSI is not the only firm that can perform these studies, is it possible for DOE to commission a truly independent study?**

Miss River and Rulo Combined.jpg

These charts show that flood levels are rising in local rivers. The Missouri River at Rulo has exceeded 25-year levels 4 times in the last 6 years, exceeded 100-year levels 2 times in the last 3 years, and exceeded the 200-year level one time in the last 2 years, almost reaching the 500-year level. A chart showing similar trending for the Mississippi was also handed out.

Relevance: the analysis done for EPA and the PRPs by EMSI site the existence of a 500 year levee as adequate to protect the radioactive materials if they are left in place. With changing precipitation patterns and additional constriction of the river upstream by updates and additions to upstream levees, it would appear that the definition of a 500-year flood needs recalibration, and, therefore, protecting to the current definition of a 500 year flood may be grossly inadequate.

West Lake – rad.charts – Kay Drey.pdf

Contains a collection of unusually high radioactive readings for RIM at West Lake Landfill and a cover letter containing a brief history of the RIM stored there.

Please let me know if you have any questions or need further information that we may be able to assist with.

We look forward to your review of this situation.

Sincerely,

Harvey

Harvey Ferdman

Policy Advisor to

Missouri State Representative Bill Otto, District 70

St. Louis, MO 63017

314-469-0595

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EMAIL 2:

Sent to Sarah Hatch (EPA) 4/16/2013

Sarah,

Thanks for setting up the call today.

I sometimes view my role in this matter as that of an arbitrator.

It that spirit, I contacted Dr. Criss and asked if he would agree that the ratios and amounts of barium and sulfate sited in Table 13 of the 1982 NRC report (see attached / Report page 109, PDF page 117 and image below) could indicate barium-sulfate that has been mixed with other materials as was discussed during today's conference call.

Here's his response:

Many reports site that there were originally 8,700 tons of Barium-Sulfate mixed with 39,000 tons of clean

dirt that constitutes the 47,700 tons of radioactive material that was deposited at West Lake Landfill.

If Barium Sulfate is the format for the Radioactive Material, then Barium-Sulfate should be present in amounts greater than background and those amounts should be consistent with the amount of radioactivity recorded from the samples. Since the samples taken by the NRC show close to or below background levels, he concludes that there is not an additional deposit of barium-sulfate present.

The NRC table shows background for Barium at 250 ppm and sulfate at 20 ppm. Note that two of the boreholes (#101 and #104) show below background for sulfate, indicating there is radioactivity present w/o additional sulfate present, implying that the radioactive material is not barium sulfate.

He further notes that to dilute waste barium sulfate to the levels present in the NRC samples would be virtually impossible to achieve: see math below

Per Dr. Criss:

In ppm, Barium Sulfate is:

<u>580,000 ppm barium</u>

420,000 ppm sulfate

The highest sample (Area 1, Borehole #103) shows 2386 ppm barium and 121 ppm sulfate. If the radioactive material started out as barium sulfate, the dilution rations would have to be as follows in order to match the observed data, which, as the numbers show, is highly unlikely if not impossible given the original 8700 tons of barium-sulfate and 39,000 tons of clean dirt allegedly deposited at the site:

580,000 / 2386 = 243 times the original volume of barium would be necessary to achieve this dilution. This means instead of 39,000 tons of clean dirt, 2,114,100 tons of clean dirt would have been required.

420,000 / 121 = 3471 times the original volume of sulfate would be necessary to achieve this dilution. This means instead of 39,000 tons of clean dirt, 30,197,700 tons of clean dirt would have been required.

Note: given the original reported volume of barium-sulfate and dilution material, the ratio of dilution to

barium-sulfate appears to be 4 to 1 (39,000 tons total mixed deposit at West Lake / 8700 tons Barium Sulfate), which is significantly different than the 243 or 3471 to 1 calculated above based on observed data. **Dr. Criss therefore asserts that the radioactive materials present at West Lake are not predominantly barium-sulfate and is recommending further testing be done to prove or disprove this.**

Note: the numbers above use maximum amount of barium measured at the site and do not account for the presence of background barium and sulfate in the material used for dilution. Accounting for these would increase the volume of material necessary to match the observed data.

Based on the above, Dr. Criss is recommending that better evidence for the presence of barium-sulfate be documented or the claim be dismissed.

Dr. Chriss has recommended that if the materials that were extacted from the site to determine the "hot spots" are availabe, a complete chemical analysis be performed on them includeing testing for barium sulfate. If these samples are not avialable, new ones should be obained and anlayzed.

Chemical Analysis of Radioactive Material From Areas 1 and 2

Table 13

Concentration in ppm

	Offsite Bkg Sample *	Area 1 Surface (#101)	Area 1 Surface (#102)	Area 1 Borehole (#103)	Area 2 Surface (#104)	Area 2 Surface (#105)
Barium	250	300	1811	2386	1158	1197
Lead	16	15	108	121	11	50
Zinc	132	146	94	76	28	167
Sulfate	20	15	108	121	11	50

*Background

Thank you for your assistance and guidance in resolving this issue.

Regards,
Harvey

Harvey Ferdman

Policy Advisor to

Missouri State Representative Bill Otto, District 70

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