Minutes For February 5, 2003

The Solano County Board of Supervisors met in special session at the Rio Vista City Council Chambers on this day at 6:03 p.m. The meeting was called to order by Chairman Kromm followed by the Pledge of Allegiance and a moment of silence. All members were present.

PRESENTATIONS

PRESENTATION BY ROBERT SPEAR, Ph.D., RE MODELING OF TOXICOLOGICAL AND INFECTION PROCESSES AND PATHOGEN EXPOSURE ASSESSMENT

Dr. Robert Speak, of the University of California, Berkeley, presented a visual presentation, incorporated herein by reference, titled "Risk Assessment, Biosolids, and Surveillance". The presentation began with Objectives, The Basic Case, Examples, Estimating the Risks, Example, Worst-Case Risks Versus Risks to Populations, Uncertainty and Variability, This was a simple example?, Biosolids, Conclusion, What can we learn from case or outbreak reports?, Reverse the Arrows, A New Set of Questions, Under what conditions is there a reasonable chance to link a disease (or symptom) cluster to a specific exposure?, and concluded with Biosolids.

PRESENTATION BY ELLEN HARRISON, MS, RE RISK ASSESSMENT CONCERNS AND ANECDOTAL REPORTS CONCERNING ADVERSE HEALTH IMPACTS FROM LAND APPLICATION OF BIOSOLIDS

Ellen Harrison, MS and Director of Cornell Waste Management Institute, reviewed a visual presentation titled "Land Application of Sewage Sludges: The Case for Caution. The presentation began with the Use of Sewage Sludges as Soil Amendments, Sewage Sludge Generation, Concerns abut using Sludges, EPA Classes of Sludge, What about Class A EQ?, Current Standards, Charge to NRC Committee, NRC Findings, Overarching NRC Recommendations, Unevaluated Pathways of Concern to Human Health, Examination of Several Assumptions that Dramatically Impact Calculated Risks, Sludges and Water Quality, Map of New York State (NYS) Showing Relative Size of Watershed and Sludge Site Under 503 RA Assumptions, Sludges and Water Quality, Groundwater and 503 RA, Preferential Flow Paths, Predicted Percent Chance of Viral Infection Resulting from exposure to Land Applied Sludges, There are Plausible Routes of Exposure, Monitoring Air and Water; There is no such thing as "Safe" Rather what is the Acceptable Risk?, the Case for Caution, Issues addressed by Municipal Ordinances, Comparison of Diet Used in EPA Risk Assessment and USDA Recommended Diet, Cadmium Uptake into Leafy Vegetables, and Cadmium Calculation for Home Gardener Eating Crops from Sludge-amended Soils.

PRESENTATION BY BLAKE SANDEN RE MINERALIZATION OF ORGANIC NITROGEN, MASS BALANCE OF HEAVY METALS, AND AGRONOMIC BENEFITS OF LAND APPLICATION FROM BIOSOLIDS COMPARED TO CHEMICAL FERTILIZERS

Blake Sanden, MS, University of California, Davis, Cooperative Extension, reviewed a visual presentation, incorporated herein by reference, titled "Biosolids Land Application: Controversy in the San Joaquin Valley. The presentation began with Kern County Class B biosolids Field Trials, Why are Growers Interested, Nutrients and Cost of Various Organic Amendments When Applied at 5 Field Tons/AC, Land Application to AG Land Cheaper than Landfill, What are the Risks?, Brief Chronology − Class B Land Application relating to Regulatory Actions and Field Activity, photos of comparison fields, What is the basic criteria used to set application rates for most southern California biosolids? Mr. Sanden made reference to the booklet "EPA Land Application of Sewage Sludge − A Guide for Land Appliers on the Requirements of the Federal Standards for the Use or Disposal of Sewage Sludge, 40 CFR Part 503, incorporated herein by reference. The presentation continued with Current Protocol for Estimating Plant Available Nitrogen (PAN), Denitrification Rates for Soils of Various Drainage Classes, Pre-application Determination of Residual Soil Nitrate Required by Kern Biosolids Ordinance, Kern County Class B Biosolids Field Trials, photos of comparison fields, Field Trial S. Dairy Ranch − Water Content Change Over the Season, Field 113 − Lerdo and Rowlee Trial, Grain Yields for First Year After Biosolids Application, 1st and 2nd Year Grain Yields After Biosolids Application, Field 113 − 3 year controlled filed and crop comparisons, 4 Years of Biosolids - Scofield, 1st and 2nd Year of Biosolids Field D11-4 Mineralization comparisons, Years 1 and 2 of biosolids on Field 113 Mineralization comparisons, charts comparing metals concentrations of Field D11-4 and Field 113, 2002 Biosolids/Compost Trial, and conclusions.

PRESENTATION BY DR. ROBERT HALE RE ORGANIC POLLUTANTS IN SLUDGE

Robert Hale, Ph.D., William & Mary Virginia Institute of Marine Science, School of Marine Science, presented a visual presentation titled "Synthetic Organics in Sewage Sludges Destined for Land Application. The presentation began with Sludge Disposal, Sludge Concerns, Is application of sludge on agricultural public and other lands "safe"?, Steps in US EPA Biosolids Risk Assessment, What Chemicals Present in Sludge?, Wastewater contains, Wastewater Treatment Design, Organic Chemicals in Biosolids?, Polybrominated Diphenyl Ethers (PBDEs), PBDEs in U.S. Biosolids, Once upon a time...we stopped using PBBs, Antibacterial agent: Triclosan, Triclosan degradates: A California Sludge, Tributyltin (TBT), Nonylphonols (NPs), NPs in US Biosolids, Environment Canada recommended an Estimated No Effects Value (ENEV) for terrestrial risk of 0.34 PPM, Other Emerging Organic Chemicals in Biosolids, Conclusions, and Are Biosolids Safe? − More Info Required.

PUBLIC QUESTIONS AND ANSWERES

1. For Mr. Sanden. The fields you researched, how close are they to the population by miles or feet?

Mr. Sanden noted that the test fields are about eight miles from the closest small local community. There is one small farmhouse about ½ mile away.

2. For Dr. Spear. To what extent have the existing U.S. EPA 503 Standards protected public health? In other words, is biosolids land application relative safe or relative unsafe?

Dr. Spear noted he does to know if the standards have protected public health. There has been no systematic effort or focused studies to check.

3. For Ms. Harrison. You publish a survey on your website of the so-called sludge victims. Was this an epidemiological study or is it anecdotal? Regardless, how did you establish that these individuals became ill from biosolids? Were there physician referrals?

Ms. Harrison noted there has not been individual research into the circumstances or any documentation that the illnesses are a result of biosolids. The information used was a reporting of those anecdotal allegations of the illnesses from a variety of sources.

4. For Dr. Hale. Have you looked at PDBE fate from sludge applied to land? If it is attracted to the solid phase in sludge, what would be the mechanism of release?

Dr. Hale noted no field studies have been done, the likely route for moving off site might be through air, runoff, and or through grazing.

5. For Mr. Sanden. According to your tests the metals decreased after crop production. Since they did not magically disappear, is it safe to say that they entered the grown material or the water shed and did you account for this possibility?

Mr. Sanden noted relating to plant uptake, it is inconsequential. There is some evidence that there is leaching occurring. With the metals their sampling did not detect a significant difference between the level that was in the treated areas versus the levels in the control areas. Leaching is occurring regardless if biosolids are there or not.

Ms. Harrison noted the amount of metals that would be applied in one or two applications of biosolids is not a lot. It would be surprising to see any significant accumulation of metals in the short-term study of a couple of years. That is one of the problems with the research in this area if you are looking at long-term soil health issues or leaching issues.

Mr. Sanden noted that some of the native alkaline soils in San Joaquin Valley already have higher levels of a wide variety metals, many soils in Solano County do not. There is a natural variability in the State.

6. For Ms. Harrison. With tilling the soil within a three mile setback and with average winds exceeding 20 miles per hour is the possibility raised of creating a greater dust problem and because of the nature of Rio Vista's winds make a stronger case for greater setback distances?

Ms. Harrison discussed the importance of soil incorporation, but that discing could raise dust issues. Incorporation is important relative to the effects after application, i.e. wind born and runoff contaminates. Currently there is not enough information to determine what setbacks are adequate, and the assumptions relative to this need to be reevaluated.

7. For Dr. Spears. People in general move from place to place. How do we measure affects on a "mobile" population?

Dr. Spear noted it is difficult, and mobility is a big problem. The mobility issue is most prevalent in occupational studies.

8. For Dr. Hale. How would you handle sludge if you operated a wastewater treatment plant?

Dr. Hale noted it all comes down to a money issue, and noted the need to investigate the possible effects to determine a final solution. If we can not land apply the biosolids, what can we do with it?

9. For Mr. Sanden. Compare the risk of using biosolids with that of using pesticides and herbicides from a human health and environmental standpoint.

Mr. Sanden noted that with regards to regional risk assessment that the EPA put forward they were quit cautious in establishing tolerance limits with which they review pesticides and the tolerance limits that are stated as acceptable in the original risk assessment. That risk assessment basically said that a one in 10,000 potential cancer risk was acceptable for the creation of the original 503 regulations. The EPA standard for registration of any new pesticides is one in one million, and that double standard has been raised in a number of places. Mr. Sanden is not sure why it was set up that way. With regards to documented cases of health problems due to pesticides, and we probably have in California of about 100 to 200 documented incidents of a serious exposure that has occurred. Pesticides are needed, but come with a real risk.

10. For Dr. Spear. Answer in one word, true or false, would banning biosolid Class B spreading for a year help provide a solid baseline in regards to complaints and allow for controlled studies on the environment that may be affected.

Dr. Spear said no. If you were trying to design a study that would not be the study that you would do to resolve the issue. There are a number of other types of studies that would provide the information.

11. For Ms. Harrison. In your opinion, why has the EPA failed to research the health effects of exposure to sludge?

Ms. Harrison noted it has been puzzling looking at how EPA has dealt with sludge research issues. The current Title 503 Rules were developed in the Office of Water within the EPA, this division developed the sludge pools and did the risk assessment. That is the same office that regulates treatment plants. The Office of Research and Development of the EPA was not happy when they reviewed the sludge rules, resulting in a preamble being written for the 503 rules that noted six major areas of research the EPA needed to further undertake to better develop this rule or a system to do that. Unfortunately that research never took place. There are many different standards at the EPA, with many different levels of acceptable risk. Ms. Harrison feels there should be one office within the EPA that develops the risk numbers, the assessment and to develop the standards. In general EPA is focused on chemical risks not on pathogen risks, and does not have the experience in doing epidemiological studies. There should be an agency, something like the Center for Disease Control (CDC), brought in to do studies. None of the states have asked the CDC to come in, but currently the CDC does not have the resources to do it.

Dr. Spear noted EPA is not an agency that has ever done health studies, and over time has been forced into the health risk area.

12. For Ms. Harrison and Dr. Hale. Rio Vista gets its water from an underground aquifer. Given the leaching potential of pathogens and chemicals that occurs from sludge, would you recommend a complete ban of Class A and B if there is a possibility of contamination?

Dr. Hale noted there is a range of chemicals present in biosolids, some with a potential for leaching, initial studies are needed to provide adequate information.

Ms. Harrison noted in theory Class A materials should not contain viruses so leaching into ground water is not an issue, but feels the total amount of chemicals that are applied should be limited.

13. For Mr. Sanden. Fields are being applied yearly with no cultivation and no planting, just animals grazing at varied times, and no watering except from winter rains. Do you feel this is within the scope of proper application procedures?

Mr. Sanden noted under the original rule there was some stipulation allowing application to rangelands, incorporation becomes important when the application area is in a sensitive watershed. The persistence of pathogens is a debatable issue depending on the application area. To get the biggest benefit

from organic matter it needs to be incorporated.

14. For Dr. Spear. Are there current risk assessment models that cover the mixture of chemicals and pathogens found in sludge?

Dr. Spear noted the EPA has not done a current risk assessment model for the mixture of chemicals and pathogens, but has done the models for chemicals only. Currently there are pathogen assessments being developed, but none for the combined assessment.

Ms. Harrison noted the potential interaction is on people's minds, the chemical reactions may predispose people to illness, and discussed higher rates of occurrence of staphoreous with people that have been exposed to biosolids.

Mr. Sanden noted the statistical methods for evaluating multiple causal agents in doing risk assessments is a relatively new tool that has been developed over the last 10 years.

15. For Ms. Harrison. Isn't it true people get sick for a number of reasons? So how can you be certain the so-called sludge victims are indeed victims of exposure to sludge?

Ms. Harrison noted she is not certain that all of the "sludge victims" are ill as a result of sludge. On the other hand, I have been looking at the information regarding the incidents and the victims, and was struck by the commonality of the symptoms. Ms. Harrison noted areas that she does not consider common such as nose bleeds, occurrences of staphoreous infections, the frequency of people waking up at night and not being able to breathe, and when seeing the same symptoms cropping up at the different sites where the spreading of sewage sludge is common with these sites.

16. For Mr. Sanden. Bottom line, is Class B biosolids land application relatively safe when adequate buffers from people are used or is it relatively unsafe?

Mr. Sanden noted that in San Joaquin County the spreading is done in an area that the ground is not in a watershed draining area eliminating site transport. If you are not using the water that is there and are incorporating the material right after application, then he feels it has a home. This type of area you do not have to worry about contamination issues.

17. For Ms. Harrison. What is the possibility of Class A sludge regrowing pathogens? If this happens, what is the difference between Class A and B at this point?

Ms. Harrison feels that pathogen regrowth issues appear to be related to the destruction of some of the competing microorganisms, which is less likely with Class B since you keep a population of competing organisms. The difference of regrowth in Class A to Class B is that you probably would have no viruses since they can not regrow in Class A, only bacteria have that capability.

So a product, that was Class A at one time and has been subject to regrowth, could have some potential bacterial pathogens. Some Class A products may have a significant potential for regrowth.

18. For Ms. Harrison. My understanding is that sludge that has been dried to 20% solids or greater does not "run off" the property where it is applied, but actually helps control runoff. Is this true? Do you think incorporation of the biosolids would mitigate any potential for possible runoff effects?

Ms. Harrison feels that with a higher solid content means that the material is not going to cause any runoff. It takes a lot to rewet these materials, this stuff can sit around for a long time, so if you have significant rainfall the potential for runoff still exists. With incorporation, the ability for absorption into the soil is better, but does not preclude runoff.

Responding to questions posed by Supervisor Kondylis regarding the lack of funding for researching the effects of chemicals, Dr. Spear noted there are many chemicals that there is little toxicological data available on. The issue of testing is an issue in general, and there is no real organized way to test the new chemicals with the lack of resources. When testing is done it does begin with bacterial then moves up the chain, but as you go the costs escalate. Dr. Hale noted there are some backward ways to research the effects of biosolids on humans.

Responding to questions posed by Supervisor Kondylis regarding nonylphenols biodegrading in sunlight within 30 days and concerns with tilling the soil, with what happens to the molecules when the wind blows, Dr. Spear noted you must keep in mind it is not the fact that the nonylphenols are there, but that they have to be there in sufficient quantities. Generally speaking there are no benign chemicals in the environment. It does come down to quantitative prioritizations, which are not done well.

Responding to questions posed by Supervisor Kondylis regarding if water treatment can address any of the nonylphenols that have gotten into the water, Dr. Hale noted there have been studies in the U.K., which the EPA has reviewed, and the EPA has noted some problems in fish. Dr. Hale mentioned the saying that the solution to pollution is dilution, but noted there are exceptions to that.

PUBLIC COMMENT

APPEARANCES BY JUNE GUIDOTTI, IRENE HEMPSTEAD, DAVE HEMPSTEAD, ROD DUPONT, MICHAEL MORTENSEN, STEVEN BISSELL, DR. CHLOE BOETTCHER, LARRY OESTREICH, ALBERT MEDVITZ, MAYOR MARCI COGLIANESE, AND A SUBMITTAL BY DR. LORRAINE MCGEE

June Guidotti, Suisun, read a portion of a letter dated February 5, 2003, incorporated herein by reference, requesting the Board to ban biosolids in the

County, and feels the Board is here to protect the citizens of the County.

Irene Hempstead, Rio Vista, feels there is proof that Class B biosolids are dangerous, they are a nuisance, and represents a danger health, soil, ground water, animals, wild life, food chain and our property. There are health hazards with the odor, toxic gases can cause health problems. There are gaps in the EPA research, and voiced concern with the transport of biosolids bypassing the State scales station on Interstate 80.

Dave Hempstead, Rio Vista, noted opposition to the biosolids, feels each county should take care of their own sludge.

Rod Dupont, Rio Vista, discussed the pollution and contamination of water sources, there are money issues, and feels stricter enforcement is needed.

Michael Mortensen, Rio Vista, feels Class A and B should be banned, and asked the Board to consider the children living in this area.

Steven Bissell, Isleton, requested the Board look at banning biosolids since there are so many unknown factors, feels there will be future problems affecting the area, voiced concern with a potential increase in trucks traveling on Hwy 12, and feels safety should be first.

Dr. Chloe Boettcher, Rio Vista, requested the Board take the people out of harms way by banning biosolids.

Larry Oestreich, Rio Vista, noted he has been ill since biosolids have been applied.

Albert Medvitz, Rio Vista, noted the need for humble reasoning that should be done with knowledge. Another issue in the debate is that science has not provided the answers. This is a policy issue for the Board to determine.

Marci Coglianese, Mayor of Rio Vista, discussed how much that has been learned, the view of the EPA has changed, and requested the Board reconsider how much risk can be imposed on the rural residents of the County and Rio Vista. This is a policy issue for the Board. There is not enough funding for oversight, enforcement, or to study the effects. Who will bear the cost and benefit. This issue must be resolved.

Lorraine McGee, M.D., submitted a letter along with a research article "Endemic cryptosporidiosis and exposure to municipal tap water in persons with acquired immunodeficiency syndrome (AIDS): A case-control study" dated February 5, 2003, incorporated herein by reference. Dr. McGee requested another meeting be held to introduce additional speakers against biosolids.

ADJOURN - This meeting of the Board of Supervisors adjourned at 10:05 p.m.

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Duane Kromm, Chair

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Maggie Jimenez
Clerk to the Board of Supervisors