

LAND PLANNING AND ENVIRONMENT

Biosolids 2003-2004 Grand Jury Report [One Grand Juror Recused]

I. Reason for Investigation

The Grand Jury received several citizen complaints concerning the possible hazards of dispersing biosolids on Solano County farmland.

II. Procedure

The Grand Jury:

- Interviewed Staff of the Solano County Department of Environmental Management (DEM)
- Attended Solano County Board of Supervisors meeting September 23, 2003 where DEM presented proposals regarding biosolids
- Interviewed Department Head of DEM
- Interviewed complainants
- Interviewed the Agricultural Commissioner for Solano County
- Interviewed Rio Vista residents
- Interviewed representatives of a firm that disperses biosolids on the farmland
- Interviewed farmer/rancher who has used biosolids
- Visited fields which had biosolids applied the previous season
- Visited fields during biosolids application

The Grand Jury received and reviewed the following documents:

- US Environmental Protection Agency Regulations 40CFR Chapter 1, Subchapter O, Part 503 – Standards for the Use or Disposal of Sewage Sludge
- A Plain English Guide to the EPA Part 503 Biosolids Rule, September 1994
- State Water Resources Control Board Order No. 2000-10-DWQ -- General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities
- User's Manual for Water Quality Order No. 2000-10-DWQ – Applicability of the General Order and Statewide Program EIR to Biosolids Land Application Projects in California
- Solano County Code, Chapter 25
- Solano County Board of Supervisors Minutes
 - January 21, 2003 Special Meeting – Biosolids
 - January 30, 2003 Special Meeting – Biosolids

- February 5, 2003 Special Meeting – Biosolids
 - March 11, 2003 Regular Meeting
 - April 8, 2003 Regular Meeting
 - April 22, 2003 Regular Meeting
- Land Application of Biosolids: 2003 Year End Report by DEM to the Solano County Board of Supervisors January 13, 2004
 - Review of Solano County’s local Biosolids program by DEM presented to the Solano County Board of Supervisors August 27, 2002
 - Solano County’s Biosolids Program Powerpoint Presentation (undated)
 - 1999-2000 Riverside County Grand Jury Report – Sewage Biosolid Waste Management of the County
 - National Academy of Sciences Report—Biosolids Applied to Land: Advancing Standards and Practices (2002)
 - US Environmental Protection Agency Pamphlet –Biosolids Recycling: Beneficial Technology for a Better Environment June 1994
 - Solano County Department of Agriculture – 2002 Agriculture Overview June 2003
 - Synagro California Land Application Map, Corporate Information, Chino manure processing, Outreach Program and additional supportive documents.
 - Synagro 2003 Pre-Application Report, Post Application Report, Map showing Regional Water
 - Quality Control Board dividing line, Cumulative Metal Loading Records
 - Conditions Covenants and Restrictions (CC&Rs) for Trilogy at Rio Vista
 - California Association of Sanitation Agencies – Biosolids Fact Sheet
 - California Integrated Waste Management Board – Background Information for Board Meeting April 13-14, 2004

III. Background

1. Biosolids are the solid, semi-solid, or liquid residue resulting from the treatment process of domestic sewage in a wastewater treatment facility. Biosolids are classified by federal regulation into Class B which is the primary treated product of wastewater treatment facilities, and Class A which are further treated to reduce pathogens. The regulations specify the composition of each class. According to the California Association of Sanitation Agencies (CASA), Californians generate approximately 750,000 dry tons of sewage waste every year. Approximately 85 % of this sewage waste is Class B.

After treatment, this solid waste is disposed of in various ways: 54% is land applied, 16% is composted, 16% is disposed of in landfills, 7% is incinerated and the remainder is disposed of in dedicated surface disposal sites or stored (Data as of April 2004). Ocean dumping used to be common but was prohibited by the Clean Oceans Act of 1992. Disposal in land fill is discouraged by state

legislation (Integrated Waste Management Act of 1989 commonly called AB 939) which requires 50% diversion of solid waste from land fills.

2. Local sanitation/utility districts pay the costs of disposal, which for land fill and land application are approximately the same. Other disposal options such as composting and pelletizing require large capital investments and are much more costly. Seventy-five percent of the biosolids spread in Solano County have come from the East Bay Municipal Utility District and from San Francisco County. The remainder came from four other bay area sanitary districts.

3. Agriculture is an important element of Solano County's economic health, with approximately 400 full-time farming operations. Approximately 65% of the acreage in Solano County is farm land. When purchasing homes in the County many CC and R's advise that property located in the vicinity of agricultural land will regularly be impacted by agricultural activities such as farm equipment on the roads, aerial crop dusting, agricultural burning and farm animals which are associated with odors and flies. Agricultural products contributed about \$200,000,000 to the Solano County economy in 2002. For the year 2003, a total of 8,298 dry tons (40,478 wet tons) of biosolids were spread on 1,540 farmland acres.

4. Biosolids allow the grower to avoid the use of chemical fertilizers and increase the productivity of grassland in Solano County which has marginal value for other crops. Biosolids application has been shown to increase yields of hay approximately 4-fold over an untreated, undisked fields, which in one example corresponded to about \$400 per acre. Costs of biosolids application are borne by the utility/sanitary district with no additional cost to the farmer. Equivalent chemical fertilizer costs would be approximately \$55-60/acre, which includes the application and disking costs.

5. Grand Jurors examined soil and plant growth in biosolids-treated and untreated areas at several locations. There was a noticeable visual difference in plant growth between treated areas and the adjacent buffers. In accordance with regulations, buffers are used as setbacks from roads, wells, creeks, buildings, etc. There did not appear to be significant leaching into the buffer as there was a distinct demarcation between treated areas and buffers.

6. In interviews with concerned citizens, the Grand Jury heard complaints from nearby residents about odors and concerns about possible windborne hazards, especially to asthma sufferers, from pathogens that may be present in the Class B biosolids. Complainants stated that biosolids spreading should be banned until such time as it can be proven safe. In addition, there were statements that the practice was of benefit to only a "handful" of people. An incident in 2001 in which biosolids spread near the City of Rio Vista resulted in an extremely unpleasant odor, generating a great deal of concern in the community about the practice. As a result of this concern a stakeholders group was formed which had a large impact on the formulation of new local regulations. They provided background information and data which were useful to the Grand Jury in our investigation.

7. Biosolids spreading is highly regulated at the federal, state and local level. The US Environmental Protection Agency (USEPA) regulations were published in 1993 as "Standards for the Use or Disposal of Sewage Sludge" in the Code of Federal Regulations, Title 40, Part 503. These regulations set standards for biosolids spreading operations, management practices, and pollution limits. The Part 503 rules require a sewage treatment plant to obtain a permit from USEPA for land application of biosolids, and to meet stringent treatment and testing requirements. USEPA also performs periodic inspections in Solano County to assure conformance to the rule by the biosolids generators and the biosolids applicators.

8. The California State Water Resources Control Board regulates biosolids application through its General Order 2000-10-DWQ, issued in August 2000 after an environmental review, health impact analysis, public review and comment. The regulation sets evaluation and monitoring standards, including a requirement for groundwater monitoring, an emergency spill response plan, erosion control plan, and exclusion periods before grazing is allowed after the use of Class B solids. In addition, the Regional Water Quality Control Boards (RWQCB) permit and inspect the sewage treatment facilities. Solano County is within the jurisdiction of two RWQCBs, the Central Valley Board and the San Francisco Bay Area Board.

9. In addition to the federal and state oversight, Solano County is one of the few counties in the state that also has an ordinance (Chapter 25 of the Solano County Code), passed in January 1997 and amended in March 1998, March 2002 and April 2003 that provides for local oversight and regulation of biosolids by the DEM. Under this ordinance, biosolids may be applied only between April 15th and October 15th to certain agricultural lands within a registered site after the applicator submits a pre-season Landspreading Notification Report and receives approval from DEM. DEM approval requires prior RWQCB concurrence and proof of notification of neighboring residences. DEM collects random samples of materials applied to the fields and responds to nuisance complaints and prepares an annual biosolids report to the Board of Supervisors.

10. Local biosolids regulations evolved over the last few years in response to citizen complaints and concerns. The regulations were passed after a significant amount of study and input from concerned citizens; local government officials; county environmental, health and agricultural officials; growers and ranchers; applicators and biosolids generators; and experts from USEPA, California RWQCBs, and the University of California. Public comment was heard during regular Board of Supervisors meetings, special Board of Supervisors meetings held in Rio Vista and numerous stakeholder meetings.

11. Current local regulations can be summarized as follows:

- a. A permit is required for each application site. Staging areas and land application sites must be at least 500 feet from water supply wells, ¼ mile from residences, two miles from city limits, 100 feet from public roads, 200 feet from surface waters, and 2,500 feet from any domestic surface water supply intake. There are fees for each permit issued and fees for Site Registration and Landspreading Notification. After the permit is issued, notification of spreading at a permitted site must be given ten working days prior to the initiation of land application. The applicator must also provide written notification to all residents adjacent to the site, publish a notice in the local newspaper(s) and notify the mayor or city manager of a planned application.
- b. There is a procedure for neighbors, or for residents of a city or urban center within two miles of an application site, to file a protest if they object to the proposed biosolids application.
- c. A DEM inspector must be on site during the application. Soil samples are taken before and after spreading and samples of the material being spread are collected for analysis, with the applicator being responsible for the costs of the analysis.

d. Trucks used to transport or apply biosolids shall not track mud or debris onto County or State roadways, and the applicator is responsible to repair road damage caused by the hauling of biosolids, to the satisfaction of the County Transportation Department.

e. That biosolids not be placed in a staging area more than six hours prior to application, that they be land applied before the end of the day, and incorporated into the soil within 24 hours of application unless prevented by inclement weather or winds (see below). Land spreading and incorporation is only allowed between 6:00 am and 6:00 pm and is not permitted on weekends or holidays.

f. Application during periods of rainfall, or to land that is water saturated or frozen is prohibited.

g. The applicator may not start receiving, land spreading or incorporating biosolids if wind speeds exceed 25 mph and, once started, shall cease if wind speed exceeds 25 mph for 90 minutes. Applicator provides wind speed monitoring devices including a windsock calibrated for a 25 mph wind, visible from a public road.

h. Grazing is restricted for 30 days after application and biosolids are not used on row crops because food crops may not be harvested within 14 to 38 months (depending on the type of crop) of biosolids application.

12. DEM provides an annual written report to the Board of Supervisors at the end of each biosolids land application period. This provides a summary of application sites and amounts applied, application sources and results of analytical tests performed on biosolids materials and soil samples. During 2003, a total of 114 on-site inspections were performed. These inspections included monitoring of the weather via portable weather stations and/or handheld weather devices, verification of setbacks, sample collection, documenting activities with digital cameras and completing daily inspection reports. A total of 308 hours were devoted by DEM personnel to site inspections.

VI. Findings and Recommendations

Each finding is referenced to the background paragraph number

Finding #1 – The County has developed adequate regulations and monitoring procedures to maintain safety for residents near biosolids sites. (9)(10)(11)

Recommendation # 1 - DEM continue to enforce regulations and monitor biosolids application sites.

Finding #2 – There is no evidence that the spreading of biosolids under the conditions set by the County is unsafe or hazardous to health. (Refer to National Academy of Sciences Report—Biosolids Applied to Land: Advancing Standards and Practices, 2002)

Recommendation # 2 – DEM continue to meet with stakeholders to monitor any new scientific findings in this area.

Finding # 3 – A 2001 incident of biosolids application caused unacceptable odors. This situation has not been repeated since the new County regulations went in to effect in April 2003. (6)(9)(10)(11)(12)

Recommendation # 3 – DEM should continue to enforce regulations to ensure that biosolids applications do not cause any nuisances to nearby residents.

Finding # 4 – Citizens’ committees have taken an active role in helping to develop regulations that address their concerns about possible negative effects of biosolids applications in the county. There continues to be a level of apprehension about biosolids and dissatisfaction with the regulations. (6)

Recommendation # 4 -DEM should continue to monitor scientific research in this area and recommend updating regulations as needed. Stakeholders and other interested parties should continue to be involved in this process.

Finding # 5 – Solano County is one of the few California counties that regulate biosolids application. (9)(10)(11)

Recommendation # 5 - The County should continue this cutting-edge program to insure the health and welfare of all citizens while maintaining the agricultural viability of Solano County.

Finding # 6 - DEM and the applicator are documenting citizen complaints, taking concerns seriously and responding appropriately. (12)

Recommendation # 6 DEM continue to document and respond to complaints, and produce an annual report to the County Board of Supervisors.

Finding # 7 - Farmers/ranchers report economic benefits in terms of agricultural productivity as a result of biosolids applications. The general public gains from the ability to recycle waste rather than using up landfills. (1)(4)

Recommendation #7 - Use of biosolids in permitted locations should be allowed to continue as an economic benefit to the agricultural community and a benefit to the general public in terms of waste recycling.

IV. Comments

The Grand Jury recognizes the positive impact that the Stakeholders and citizens concerned about this issue have had on the development of the County biosolids regulations. Their continuing interest and willingness to contribute to the formulation of county-wide policy has placed Solano County in the forefront among California communities in addressing the land application of biosolids.

The Grand Jury concurs with the policy statement by the Solano County Board of Supervisors as stated in the 2002 Agricultural Overview: “Solano County is a desirable place to live because of its rural characteristics. The BOS has determined that the best use for agricultural/open space land is to preserve agricultural operations. Slight unavoidable inconveniences may arise from agricultural activities but are a small price to pay for the lifestyle we all enjoy.”

VII. Affected Agencies

- Solano County Department of Resource Management
- Solano County Department of Agriculture
- Solano County Board of Supervisors