

**Cost Analysis for the Rancho Las Virgenes  
Composting Facility  
July 2010**

The JPA has requested that a cost benefit analysis (CBA) be completed to compare the composting of biosolids to hauling dewatered biosolids to the Toland Road Landfill for drying or to another site for disposal. This report is not a CBA, but rather it describes the background on the decision to compost biosolids; establishes a baseline for a future CBA; outlines areas that should be considered in a CBA; briefly describes regulatory trends in biosolids disposal and reuse and suggests areas of improvement in the treatment and composting of biosolids.

### The Decision to Compost

Being responsive to their statutory responsibility to provide wastewater treatment capacity for approved growth forecasts, the JPA certified the Environmental Impact Report (EIR) for Regional Facility Expansion IV (RFE IV) on February 13, 1989<sup>1</sup>. The EIR assessed the primary effects associated with the expansion of wastewater treatment capacity from 10 MGD to 16.1 MGD. The 16.1 MGD was based on a 1987 demographic study that identified 16.1 MGD of approved forecasts and estimated future build out as high as 21.8 MGD<sup>2</sup>. The expansion consisted of both liquid and solids handling capacity. The EIR had to consider project alternatives. For sludge treatment, *treatment and disposal* and *treatment and utilization* were considered. Various treatment processes were considered for both alternatives that provided stabilization and reduction or thickening of the biosolids.

In considering the *treatment and disposal* alternative transport of the final product was to be by trucks and pipelines. Rail transport was eliminated as an option due to high cost and the small quantities involved. The disposal options were limited to the Ventura County Simi Valley Landfill and land spreading at a higher rate than necessary for agricultural uses. The disposal options considered at the time the EIR was done did not provide for beneficial reuse, had potential effects on groundwater and were very limited and restrictive.

The *treatment and utilization* alternative considered options where the treated biosolids would be beneficially reused, these included use as a soil amendment, fertilizer or fertilizer additive or applied to agricultural land spreading. The project alternative analysis of the EIR concluded that “The project proposal incorporates provisions for beneficial reuse (including application to land spreading at Rancho; composting, distribution and marketing and as a last resort, landfill disposal. Consequently, the project is consistent with what is considered to be the environmentally superior sludge treatment and disposal alternatives.”<sup>3</sup>

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<sup>1</sup> Las Virgenes Municipal Water District/Triunfo County Sanitation District, Compendium: Final Environmental Impact Report Proposed Regional Facility Expansion IV, LVMWD Report # 3550, Michael Brandman Associates, February 1989

<sup>2</sup> Las Virgenes Municipal Water District and Triunfo County Sanitation District Build Out Demographic Study, Michael Brandman Associates, September 1987

<sup>3</sup> Attachment D of the RFE IV EIR page D-11

The certified EIR for RFE IV became the guiding document for the expansion of wastewater treatment capacity for both liquid and solids handling, resulting in the expansion of Tapia for liquid handling and the construction of the Rancho Composting Facility for solids handling.

### What is a Cost Benefit Analysis?

A financial analysis for biosolids management focuses solely on expenses versus revenue. This comparison of expenses to revenue produces the *financial bottom line* and is necessary to understand the revenue needs of the organization. Conversely it can also identify excessive expenses. A CBA starts with a financial analysis, but then adds external and non-financial impacts to provide a much broader understanding of the full cost, benefits and risks associated with a particular biosolids management option. The perspective of not only the utility but also the customer's and society's (the broader community) should be included in the benefits and risks considered. The impact on rates, transportation and greenhouse gas emissions are a few examples of items considered in a CBA that compares various biosolids management options.

A recent Water Environment Research Foundation report<sup>4</sup> described a framework for conducting a CBA. The following steps make up the framework.

1. Establish the baseline.
2. Identify biosolids management options.
3. Identify the full range of relevant costs and benefits associated with the options.
4. Screen costs and benefits for appropriate analysis approach, either quantitative or qualitative.
5. Quantify units associated with costs and benefits.
6. Value units associated with costs and benefits in monetary terms.
7. Describe key benefits and costs for which quantification is not appropriate or feasible.
8. Summarize all present value or annualized costs and benefits and compare costs to benefits.
9. List and assess all omissions, biases and uncertainties.
10. Conduct sensitivity analysis on key values.
11. Compare results with values from stakeholders perspective.

### Cost Benefit Analysis Baseline

The baseline in a CBA is the definition of the "status quo" from which other alternatives are compared. The baseline must also reflect the future. The baseline is not the same as the "current" situation even though it may include the existing biosolids management practices because its benefits and costs are also analyzed. The status quo option may prove to be a viable option once the CBA is completed. For the Rancho

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<sup>4</sup> An Economic Framework for Evaluating the Benefits and Costs of Biosolids Management Options, WERF 04-CTS-2, Robert S. Raucher, 2007

Las Virgenes Composting Plant the baseline includes all costs and benefits associated with digestion and dewatering and composting of biosolids.

A first step in establishing the baseline is defining the current and historical costs associated with the digestion and dewatering and composting processes at Rancho. Based on staff's financial analysis, Appendix A, approximately 53% of the cost is attributable to digestion and dewatering and 47% of the cost to composting. Table 1 shows the actual costs for each process and Table 2 shows the unit costs for Fiscal Year 2005-06 through Fiscal Year 2008-09.

Table 1			
	Total	Digestion & Dewatering	Composting
Fiscal Year 2005-06	\$3,546,585	\$2,146,949	\$1,399,636
Fiscal Year 2006-07	\$3,683,164	\$2,230,729	\$1,452,435
Fiscal Year 2007-08	\$4,118,820	\$2,440,649	\$1,678,171
Fiscal Year 2008-09	\$4,642,263	\$2,747,594	\$1,894,669

Table 2					
	Wet Tons Dewatered	Compost Produced Cubic Yards	Cost per Wet Ton for Dewatering	Cost per Wet Ton for Composting	Cost per Cubic Yard for Composting
Fiscal Year 2005-06	5,390	11,774	\$398.32	\$259.67	\$118.88
Fiscal Year 2006-07	5,966	9,279 <sup>5</sup>	\$373.91	\$243.45	\$156.53
Fiscal Year 2007-08	7,001	15,858	\$348.61	\$239.70	\$105.82
Fiscal Year 2008-09	6,291	13,622 <sup>6</sup>	\$436.75	\$301.17	\$139.09
Average	6,162	12,633	\$389.40	\$261.00	\$130.08

Compost production began in Fiscal Year 1993-94. The actual expenses between FY1994-95 and FY2009-10 have increased 49% in comparison to the CPI<sup>7</sup> that has increased 32%. The price of natural gas affects the price of many of the chemicals, supplies and consumables like polymer used in the treatment process. The price for natural gas has risen 38% between 1994 and 2008 with spikes in 2005 and 2006 due to damage to production facilities from Hurricanes Katrina and Rita<sup>8</sup>. The actual expenses during this same time period rose 44%. Chart 1 illustrates the change in budgeted and actual expenses for Rancho from FY1993-94 to FY2009-10.

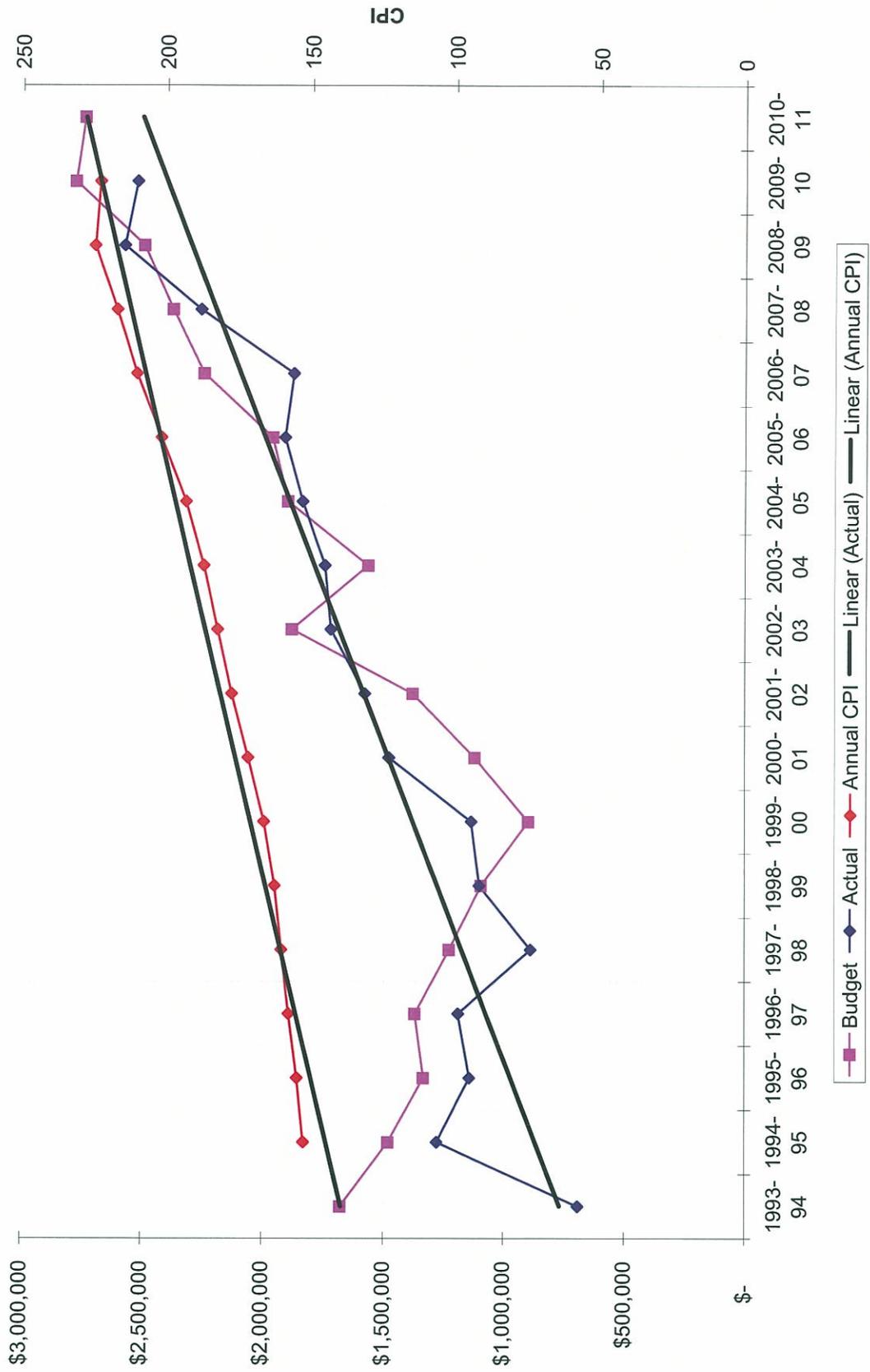
<sup>5</sup> Composting process shut down from June to September 2006.

<sup>6</sup> Composting process shut down from July to September 2009.

<sup>7</sup> Consumer Price Index - All Urban Consumers - Los Angeles-Riverside-Orange County, CA.

<sup>8</sup> Energy Information Administration /Annual Energy Review 2008 Table 6.8 Commercial Sector.

Chart 1



This type of information can be used to project future costs for the operation and maintenance of Rancho as solids production increases. It is estimated that flows to Tapia will reach build out of 12 MGD by 2030 with a corresponding increase in solids production from 80,000 gallons per day to 110,000 gallons per day. Understanding the current and historical financial data for operations and maintenance of Rancho is the first step in performing a CBA. The next section will describe external, financial and non-financial factors that should be considered in CBA when comparing the continuation of composting to other biosolids management options.

### Considerations in a CBA

The next steps in a CBA are to identify the biosolids management options and identify all relevant benefits and risks associated with those options. It would be assumed that under all options the current digestion and dewatering processes will remain generally unchanged. The biosolids management options that could be considered are:

1. Continue to compost the treated solids using the existing process.
2. Modify the composting process.
3. Construct a different treatment process such as a dryer at Rancho.
4. Transport the treated solids by truck to the Toland Road Landfill for drying and disposal.
5. Transport the treated solids by truck to another disposal site.

The areas that should be considered for each of these options if they were pursued are:

#### Financial Impacts

- What will be the capital investment costs?
- What will be the operational and maintenance costs, revenues and expenses?
- What will be future replacement costs?

#### Beneficial Reuse or Disposal

- Will the processed biosolids be beneficial reused or will the processed biosolids be disposed of?
- Does the option selected provide for either beneficial reuse or disposal?

#### Sustainability

- Will the option selected allow the agency to meet regulatory compliance now and into the future?
- Will the option selected allow the agency to manage their biosolids well into the future?
- Will the option selected “protect” the agency’s capital investment?

#### Odor/Emissions Control

- Will the option selected reduce and manage odors and emissions below an acceptable or regulated threshold?

### Permitting

- Is the necessary permitting obtainable?
- What will be the magnitude of permits for the option selected?

### Community Acceptance

- Will the option selected be acceptable to the local community and to the broader community?

### Environmental Improvements/Impacts

- Does the option selected create environmental improvements such as greenhouse gas reductions and beneficial reuse?
- Does the option selected create environmental impacts and can these impacts be mitigated?

### Energy & Operational Improvements/Impacts

- Does the option selected increase or decrease energy and other consumables?

It will take an additional study to perform a CBA comparing the current composting practice to either hauling to the Toland Road Landfill or elsewhere.

We do know that the Conditional Use Permit for the Toland Road Landfill biosolids program did not include any biosolids generated out of Ventura County.<sup>9</sup> Typical contract provisions include disposal costs of \$52 per wet ton of which \$10 is associated with trucking, the term is ten years, there is a termination payment clause for early termination and the biosolids need to be Class B between 15% and 24% solids content<sup>10</sup>. In addition, loading, weighing and odor control facilities would need to be constructed at Rancho. It is not known what the cost of these facilities would be, if the CUP could be amended and if the change would be considered a “project” under CEQA.

Waste Management Inc.’s Simi Valley Landfill will also accept Class B biosolids for disposal within the landfill. The cost is approximately \$50 per wet ton and the term of a contract would be no longer than three years. The biosolids would need to meet 50% solids content requiring additional dewatering and or drying facilities at Rancho. It is not known what the cost of these facilities would be and if the change would be considered a “project” under CEQA.

### Regulatory Trends in Biosolids Management

In 2007, 726,000 dry metric tons of biosolids were produced statewide. Of these 14% were sent out of state, 41% treated to Class A and managed by land application or reuse, 11% treated to Class B and land applied, 24% either used as alternative daily

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<sup>9</sup> In a letter dated May 1, 2006, the JPA requested the CUP include a provision that would allow JPA biosolids be processed at the Toland Road Landfill if the need arose in the future.

<sup>10</sup> Based on VRSD Contract 08-024 between VRSD and the City of Thousand Oaks.

cover or disposed of in a landfill, and the remaining 10% was incinerated or managed by other methods. 65% of the Class A biosolids was managed by composting. Local and regional regulations will affect how biosolids are managed in California. The most notable of these are:

Kern County Measure E, a Kern County law that was approved in 2006 and is intended to block shipments of biosolids from Southern California that are land applied in Kern County. The City of Los Angeles petitioned the court to overturn the measure based on violation of the commerce clause of the U.S. Constitution. Most recently the Supreme Court declined to comment letting stand a 9<sup>th</sup> U.S. Circuit Court of Appeals decision that the city and others lacked standing to sue and the case was returned to the Circuit court who has to decide whether to maintain jurisdiction or have a state court hear the case. If the measure remains in force it could result in banning the transportation of biosolids from one county to another forcing them to be transported out of state at a much higher cost.

San Francisco Compost Giveaway is a program where the city provides composted biosolids at various locations to the community. The Center for Food Safety petitioned the city to stop the project because they consider biosolids unsafe and hazardous for use on food crops despite EPA regulations to the contrary. The city has not agreed to stop their program, but the issue is getting a significant amount of press.

Sierra Club Draft Composting Policy, the Sierra Club has drafted a proposed composting policy that supports the composting of food waste and green waste, yet opposes the use of biosolids in compost operations.

The EPA is considering revisions to Part 503 rules that regulate biosolids treatment. These revisions include a risk assessment for nine constituents that may be found in composted biosolids as well as elimination of two alternatives for pathogen reduction measurements.

Appendix B includes various articles related to these and other legal and regulatory items that relate to biosolids management. These are the types of items that should be considered in any CBA when deciding on how to manage local biosolids.

### Opportunities for Improvement

There are several opportunities for improvements and potential cost savings at Rancho. Some opportunities have already presented themselves, such as those seen through the new centrate treatment process and energy management. Others are included for study or development in the FY2010-2011 Budget.

#### 1. Energy Management

During the summer of 2009, Rancho went on a TOU-8-CPP rate with Southern California Edison. The rate required that the facility shed power for up to 12 events

between the hours of 2 pm and 6 pm. By changing shift start times, staff was able to meet the requirements of the program and reduce energy costs by \$17,000 without incurring overtime. The PUC has placed Rancho on this rate. Program requirements have changed slightly which will allow Rancho staff more latitude in meeting the required events and saving energy costs.

## 2. Cogeneration

In February of 2009, the JPA Board approved Property Lease and Energy Recovery Services agreements with US Energy Operation Services, LLC for the Combined Heat and Power (CHP) Project. This project includes the installation and maintenance of internal combustion engines (ICE's) which will use digester gas to create energy. The ICE's will be owned and operated by US Energy Operation Services. It is anticipated that these facilities will generate approximately 80% of the energy needed to operate the Rancho Facility. The agreement allows US Energy Operation Services to sell the electricity generated by their facilities to the JPA at a discounted rate. When this project is complete electricity will be sold to the JPA at a rate of 6.49 cents per kWh, providing an approximate 50% energy savings based on the current Edison electrical rate of 13.5 cents per kWh at Rancho. The Fiscal Year 09 – 10 budget for electricity was \$347,750; a 50% savings would be \$173,875. It is anticipated that the co-gen project will be operational by January 2011.

## 3. Polymer Usage Evaluation

A polymer usage evaluation project is included in the FY 2010-2011 JPA budget. Polymer is used to condition sludge for centrifuge dewatering. After being mixed with water, polymers take time to become active (called polymer aging). Currently, there is no aging before polymer is injected into the centrifuges at the Rancho facility and so there is little time for the polymer to activate. Modifications to the polymer feed system for the addition of polymer aging tanks are expected to reduce the amount of polymer used in dewatering by allowing the polymer to fully activate before use. It is anticipated that polymer usage may be reduced by 25% to 50%. The Fiscal Year 09 – 10 budget for polymer was \$192,000; a 25% to 50% reduction would be \$48,000 to \$96,000.

## 4. Screening of Amendment

In an analysis performed by staff in 2002, final compost was screened to find the particle size distribution. It was found that approximately 21.5% of the compost material was greater than ¼" in size and potentially could be recycled to offset purchased amendment use. Currently, approximately 12.5% of finished compost product is recycled to provide a biological "seed" for the compost process. Currently staff is duplicating this analysis. Savings from the use of screened material would be approximately a 21.5% reduction in amendment purchases. The Fiscal Year 09 – 10 budget for amendment was \$126,000 so a 21.5% savings would be \$27,090. However, it would be necessary to purchase a screen; at this time the cost for a screen and any

support equipment is unknown. The screened compost would have the additional benefit of being a finer material, which would make it more marketable.

**Appendix A**

**Cost Analysis for the  
Rancho Las Virgenes Composting Facility**

**Prepared by  
Las Virgenes MWD Staff**

JPA  
June 2010

## **INTRODUCTION**

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### **1. Background and Purpose**

At the December 7, 2010 JPA meeting, the Joint Board directed staff to perform a financial analysis for the Rancho Las Virgenes Composting Facility to examine and segregate the costs associated with biosolids digestion and dewatering from the costs associated with composting in order to have a basis for comparison with other biosolids disposal alternatives.

### **2. Methodology**

Using the FY2008-09 actual expenses, staff first analyzed the costs associated with the overall process and divided them into either the digestion and dewatering category or the composting category. In addition, during 2002/03 through 2004/05, costs were charged to 2 different business units in an effort to understand the component costs of composting. The division of costs from that study was compared against our understanding of the split of costs today. The following Table 1 summarizes the division of costs for each budgetary unit, a line item explanation where applicable, and an explanation of why the annual expenditures at Rancho are attributable to the digestion/dewatering process or the composting process.

As shown in Table 2, approximately 53% of the total cost is attributable to digestion/dewatering and 47% is attributable to the composting process. Major cost contributors to the composting process are amendment, energy for blowers and fans, biofilter odor control and labor. Major cost contributors to digestion/dewatering are polymer and other chemicals, energy, water treatment for the boiler and labor. Significant costs which would continue regardless of the manner in which the cake is disposed would be maintenance (both labor and supplies), building and grounds upkeep, and permits.

Table 2 also shows the historical split of 53/47 applied against the expenses of the prior fiscal years.

**TABLE 1**

<b>OPERATIONS</b>						
<b>Account</b>	<b>FY08-09 Actual</b>	<b>Explanation</b>	<b>Dewatering/ Digestion</b>	<b>Composting</b>	<b>Split</b>	<b>Rationale</b>
Labor	\$696,470	Labor Hours to operate facility	\$348,235	\$348,235	50/50	Average daily work assignments = 3.5 FTE for Dewatering/Digestion and for Composting
Electricity	321,427		192,856	128,571	60/40	Prior engineering evaluation in 2001 established the 60/40 split.
Telephone	9,664		9,664			Phone service required to maintain any operations at Plant.
Natural Gas	1,021		1,021			Primarily to heat the boiler and operate the flare.
Water	20,680	Potable	20,680			Primarily used in the boiler
Supplies/Materials	16,479	Funds for chemicals and supplies	14,000	2,479	85/15	Material and supplies were listed and categorized by which activity they pertained to. Composting requires little operational supplies other than amendment and electricity.
Fuel	4,491			4,491		Fuels loader in Composting Building.
Polymer	200,824		200,824			Required in the Dewatering process.
Amendment	203,034			203,034		Used in the Composting process.
Outside Services	37,959		37,959			Costs for water treatment for boiler.
Odor Control	75,112	Costs to maintain the biofilter	7,511	67,601	10/90	Allocation based on airflow from sludge wet wells (dewatering) versus the Reactor Building (composting).
Permits/Fees	11,012	Air Quality and Fire Dept. permits	9,451	1,561	85/15	Permit fees for CUPA, flare, boiler, emergency generator, sludge dewatering and biofilter. Only generator and biofilter permits pertain to composting.
<b>TOTAL</b>	<b>\$1,598,173</b>		<b>\$842,201</b>	<b>\$755,972</b>	<b>53/47</b>	

TABLE 1 CONTINUED

MAINTENANCE						
Account	FY08-09 Actual	Explanation	Dewatering/ Digestion	Composting	Split	Rationale
Labor	\$503,394	Labor Hours to maintain facility.	\$377,546	\$125,849	75/25	Based on review of work orders for Rancho.
Supplies/Materials	193,524	Items/parts required to maintain facility.	69,762	96,762	50/50	Based on review of costs charged for miscellaneous supplies.
Outside Services	127,193	Expense for any maintenance provider.	96,395	31,798	75/25	Based on review of costs charged for outside services.
Building Maint.	75,471	Building maintenance costs not associated with process operations.	75,741			Landscaping, janitorial, HVAC services, etc., which will continue regardless of disposal method.
Capital Outlay	42,055			42,055		Replacement conveyor screws and liners.
<b>TOTAL</b>	<b>\$941,637</b>		<b>\$645,173</b>	<b>\$296,464</b>	<b>69/31</b>	

SPECIAL EXPENSES						
Account	FY08-09 Actual	Explanation	Dewatering/ Digestion	Composting	Split	Rationale
SCADA Services	\$1,603	Services and materials provided by Information Services.	\$1,603			SCADA services required regardless of process.
Technical Services	144	Services provided by Technical Services				Technical Services support required regardless of process.
Taxes	12,772	Tax supplies used in the compost given away.		12,772		Costs associated with composting.
Outside Lab Services	9,121	Tests performed by private labs	6,020	3,101	66/34	Costs allocated between each process based on number of tests performed.
Tapia Lab Sampling	2,900	Labor costs for lab personnel to perform sampling	1,914	986	66/34	Costs allocated between each process based on number of samples taken.
Allocated Lab Expense	10,687	Indirect lab costs allocated by number of tests performed.	7,053	3,634	66/34	Costs allocated between each process based on number of tests performed.
<b>TOTAL</b>	<b>\$37,227</b>		<b>\$16,590</b>	<b>\$20,493</b>	<b>45/55</b>	

TABLE 1 CONTINUED

ADMINISTRATIVE EXPENSES		Explanation	Dewatering/ Digestion	Composting	Split	Rationale
Account	FY08-09 Actual					
Allocated Support Services	\$1,425,380		\$855,228	\$570,152	60/40	Allocated based on labor hours charged to each process.
Allocated Operations Services	639,990		383,994	255,996	60/40	Allocated based on labor hours charged to each process.
<b>TOTAL</b>	<b>\$2,065,370</b>		<b>\$1,239,222</b>	<b>\$826,148</b>	<b>60/40</b>	

**TABLE 2 - ANNUAL RANCHO EXPENSES SHOWN BY SPLIT BETWEEN DIGESTION/DEWATERING AND COMPOSTING**

	Split		FY05-06		FY06-07		FY07-08		FY08-09	
	Dewatering	Composting	Dewatering	Composting	Dewatering	Composting	Dewatering	Composting	Dewatering	Composting
<b>Operations</b>										
Labor	50%	50%	\$ 239,616	\$ 239,616	\$ 261,919	\$ 261,919	\$ 274,433	\$ 274,433	\$ 348,235	\$ 348,235
Electricity	60%	40%	\$ 192,437	\$ 128,291	\$ 188,135	\$ 125,423	\$ 187,154	\$ 124,769	\$ 192,856	\$ 128,571
Telephone	100%		\$ 8,497	-	\$ 8,493	-	\$ 9,249	-	\$ 9,664	-
Natural Gas	100%		\$ 903	-	\$ 926	-	\$ 1,204	-	\$ 1,021	-
Water	100%		\$ 8,678	-	\$ 5,155	-	\$ 17,623	-	\$ 20,680	-
Supplies/Materials	85%	15%	\$ 11,401	\$ 2,012	\$ 15,318	\$ 2,703	\$ 11,087	\$ 1,956	\$ 14,007	\$ 2,472
Fuel	100%		\$ 5,737	-	\$ 2,245	-	\$ 5,766	-	\$ 4,491	-
Polymer	100%		\$ 161,364	-	\$ 108,223	-	\$ 204,921	-	\$ 200,824	-
Amendment		100%	\$ -	\$ 117,000	\$ -	\$ 123,979	\$ -	\$ 225,565	\$ -	\$ 203,034
Outside Services	100%		\$ 56,909	-	\$ 112,207	-	\$ 24,055	-	\$ 37,959	-
Odor Control	10%	90%	\$ 9,676	\$ 87,088	\$ 6,635	\$ 59,719	\$ 8,222	\$ 73,996	\$ 7,511	\$ 67,601
Permit and Fees	85%	15%	\$ 5,497	\$ 970	\$ 7,880	\$ 1,391	\$ 5,841	\$ 1,031	\$ 9,360	\$ 1,652
<b>TOTAL</b>	<b>53%</b>	<b>47%</b>	<b>\$ 700,715</b>	<b>\$ 574,976</b>	<b>\$ 717,135</b>	<b>\$ 575,133</b>	<b>\$ 749,554</b>	<b>\$ 701,751</b>	<b>\$ 846,609</b>	<b>\$ 751,564</b>
<b>Maintenance</b>										
Labor	75%	25%	\$ 242,356	\$ 80,785	\$ 234,223	\$ 78,074	\$ 272,770	\$ 90,923	\$ 377,546	\$ 125,849
Supplies/Materials	50%	50%	\$ 52,399	\$ 52,399	\$ 50,427	\$ 50,427	\$ 89,135	\$ 89,135	\$ 96,762	\$ 96,762
Outside Services	75%	25%	\$ 75,203	\$ 25,068	\$ 33,301	\$ 11,100	\$ 113,456	\$ 37,819	\$ 95,395	\$ 31,798
Building Maintenance	100%		\$ 67,958	-	\$ 79,755	-	\$ 72,706	-	\$ 75,471	-
Capital Outlay		100%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,750	\$ -	\$ 42,055
<b>TOTAL</b>	<b>69%</b>	<b>31%</b>	<b>\$ 437,916</b>	<b>\$ 158,252</b>	<b>\$ 397,705</b>	<b>\$ 139,601</b>	<b>\$ 548,066</b>	<b>\$ 220,626</b>	<b>\$ 645,173</b>	<b>\$ 296,464</b>
<b>Special Expenses</b>										
SCADA Services	100%		\$ 8,219	\$ -	\$ 13,701	\$ -	\$ 13,701	\$ -	\$ 1,603	\$ -
Compost Outreach		100%	\$ -	\$ 1,525	\$ -	\$ 4,926	\$ -	\$ 4,926	\$ -	\$ 12,772
Outside Lab Services	66%	34%	\$ 4,116	\$ 2,120	\$ 4,801	\$ 2,473	\$ 4,801	\$ 2,473	\$ 6,020	\$ 3,101
Tapia Lab Sampling	66%	34%	\$ 1,398	\$ 720	\$ 1,872	\$ 965	\$ 1,872	\$ 965	\$ 1,914	\$ 986
Allocated Lab Expense	66%	34%	\$ 6,702	\$ 3,452	\$ 6,643	\$ 3,422	\$ 6,643	\$ 3,422	\$ 7,053	\$ 3,634
<b>TOTAL</b>	<b>45%</b>	<b>55%</b>	<b>\$ 20,434</b>	<b>\$ 7,818</b>	<b>\$ 27,017</b>	<b>\$ 11,786</b>	<b>\$ 27,017</b>	<b>\$ 11,786</b>	<b>\$ 16,590</b>	<b>\$ 20,493</b>
<b>Administrative Expenses</b>										
Allocated Support Services	60%	40%	\$ 987,884	\$ 658,590	\$ 1,088,872	\$ 725,915	\$ 723,306	\$ 482,204	\$ 855,228	\$ 570,152
Allocated Operations Services	60%	40%	\$ -	\$ -	\$ -	\$ -	\$ 392,706	\$ 261,804	\$ 383,994	\$ 255,996
<b>TOTAL</b>	<b>60%</b>	<b>40%</b>	<b>\$ 987,884</b>	<b>\$ 658,590</b>	<b>\$ 1,088,872</b>	<b>\$ 725,915</b>	<b>\$ 1,116,012</b>	<b>\$ 744,008</b>	<b>\$ 1,239,222</b>	<b>\$ 826,148</b>
<b>TOTAL EXPENSES</b>	<b>53%</b>	<b>47%</b>	<b>\$ 2,146,949</b>	<b>\$ 1,399,636</b>	<b>\$ 2,230,729</b>	<b>\$ 1,452,435</b>	<b>\$ 2,440,649</b>	<b>\$ 1,678,171</b>	<b>\$ 2,747,594</b>	<b>\$ 1,894,669</b>

**Appendix B**  
**Articles and Regulatory Items**

**California biosolids production and destination, 2007:**

All values expressed in dry metric tons, 100% dry weight basis

Volume generated:		726,000
Volume sent out of state:		98,000 = 14%
Composted in AZ:	17,000	
Class B land application in AZ:	72,000	
Landfill in AZ:	5,000	
Class B land application in NV:	1,000	
Landfill in NV:	3,000	
Volume handled in state:		628,000 = 86%
Class A land application:		300,000 = 41%
Compost:	196,000	
Thermophilic digestion:	65,000	
Alkali treatment:	32,000	
Heat drying:	5,000	
Air drying:	2,000	
Class B land application:		82,000 = 11%
City-owned lands:	15,000	
In-county:	5,000	
Out-of-county:	62,000	
Landfill:		171,000 = 24%
Alternative Daily Cover:	130,000	
Fill:	41,000	
Surface disposal:		24,000 = 3%
Incineration:		24,000 = 3%
Long term treatment:		16,000 = 2%
Storage:		2,000 = < 1%
Other: construction, cement kilns, seed for industrial digesters:		9,000 = 1%
<hr/>		
Total land applied (CA + AZ + NV):		472,000 = 65%
Total reused (including ADC and use in construction, other):		611,000 = 84%
Total landfilled (including ADC and surface disposal):		203,000 = 28%

of an existing major source that results in a net increase of at least 75,000 tpy of CO<sub>2</sub>e will be subject to PSD review for GHGs

In terms of Title V requirements during Step 2, sources that are already subject to Title V based on non-GHG emissions (again, EPA refers to these sources as "anyway Title V sources"), or subject to Title V permit requirements under Step 1 of the Tailoring Rule, will continue to be covered under Step 2. Step 2 will add to Title V coverage any GHG source with CO<sub>2</sub>e emissions of 100,000 tpy or more that did not previously have a Title V permit. In describing the interplay of Title V and Step 2, EPA explains that "[i]t is important to note that the requirement to obtain a title V permit will not, by itself, result in the triggering of additional substantive requirements for control of GHG. Rather, these new title V permits will simply incorporate whatever . . . CAA requirements, if any, apply to the source being permitted].

**Step 3:** Step 3 is undefined at this time and does not have a specific projected effective date. While Step 3 will include smaller sources not covered by Steps 1 and 2, in the preamble to the Tailoring Rule EPA indicates that Step 3 would not take effect until 2017 and that "in no event will sources below 50,000 tpy CO<sub>2</sub>e be subject to PSD or title V permitting during the [interim] 6-year period."

Later steps would explore including smaller sources in the program along with ways to streamline permits if indeed these smaller sources were included.

Many issues arise with the new regulations. First, EPA does not distinguish between biogenic and anthropogenic (fossil-based) CO<sub>2</sub>. Thus, since biogenic CO<sub>2</sub> could be a significant portion of the GHG emissions from POTWS, due to combustion of digester gas in flares or energy recovery equipment, facilities that already are Title V sources, may now have to include GHGs. Also, facilities that are not now Title V sources, could have to obtain Title V permits for the first time. Finally, since most POTWS do not have PSD permits, this rulemaking could result in facilities having to obtain PSD permits. Complicating the PSD issue is the treatment of fugitive emissions (e.g. non-point source emissions from treatment processes). This issue will be treated in a future news letter (see note below).

Under Title V, facilities that now have to include regulated GHGs would likely have to incorporate new monitoring requirements. Under PSD, impacted facilities would have to incorporate best available control technology (BACT) for GHGs. This is currently undefined, so the full impact of this requirement is not

known at this time. In the next newsletter, I will spend more time reviewing the potential impacts to our industry, including monitoring requirements, BACT for GHGs and fugitive emissions under the PSD program.



## Biosolids

Chair Mike Sullivan  
msullivan@lacsds.org

**Biosolids Committee Semi-Annual Report** by Mike Sullivan, LACSD and Leyla Perez, OCSD

The Biosolids Committee continues to diligently work on reviewing and responding to legislative bills, regulations, and local ordinances that may impact current and future biosolids management options. The Committee also continues to provide updates to its members on a number of local biosolids management facilities that will come online in 2010 and 2011.

### **Legislative Bills and Regulations:**

In the first half of 2010, the Biosolids Committee continued to track legal and regulatory items related to biosolids:

**Kern County Measure E** – The City of Los Angeles and the other petitioners have asked the U.S. Supreme Court to hear their case alleging that the Kern County ban on biosolids land application (Measure E) is unconstitutional. The petition for a writ of certiorari, filed on March 15, 2009, requests that the U.S. Supreme Court correct a recent appeals court determination, that the plaintiffs lack prudential standing to sue Kern County under the U.S. Constitution's dormant commerce clause for banning the use of biosolids generated outside Kern County on unincorporated Kern County land.

The Federal Circuit Court initially ruled that Measure E discriminated against interstate commerce, allowing Kern County biosolids to continue to be land applied locally, while preventing the same option for biosolids from outside of the county. The 9th Circuit Court of Appeals then invalidated the ruling, finding that the plaintiffs' claims arise from intrastate commerce, and therefore fall outside the domain of the commerce clause.

**Rule revisions contemplated for part 503** - The Office of Science and Technology is conducting a risk assessment for the nine constituents identified in the 2003 biennial survey plus molybdenum. The nine constituents are: Barium, Beryllium, Manganese, Silver, Fluoranthene, Pyrene, 4-chloroaniline, Nitrate, and Nitrite.

It is unknown whether the risk assessments will result in any new regulatory standards, so we will be closely monitoring this process as it develops. It is expected that a new Table 3 limit for molybdenum will be recommended. EPA is also evaluating data for the other 135 constituents analyzed as part of the Targeted National Sewage Sludge Survey, released in January 2009, to determine if risk assessments should be conducted for them. It appears that enough data is available to conduct a risk assessment for approximately 40 additional constituents. EPA is also working to update analytical methods for a number of constituents within the biosolids matrix and will codify them as appropriate. They are also contemplating the elimination of Class A pathogen alternatives 3 & 4, which are the monitoring options for enteric virus and helminth ova. [NOTE: this could have an impact in California, since most County ordinances which require Class A for land application generally specify demonstration of compliance via these options.] EPA is also considering changes to their recordkeeping and reporting requirements, that would affect such areas as: reporting of where biosolids are land applied; how biosolids are managed; quantities produced and used; specificity on how pathogen and vector attraction reduction are met; and electronic reporting if funding is provided.

### **Other Noteworthy Biosolids Issues** -

- Biosolids Compost VOC Emissions Study
- Use of Compost for Slope Stabilization of Fire Ravaged Lands
- EPA Cancer Slope Factor for Inorganic Arsenic
- Proposed Changes to the Sewage Sludge Incinerator Criteria and Solid Waste Definition
- Opening of the H.M. Holloway Mines Landfill

### **Sierra Club Draft Composting Policy** by Matt Bao, LACSD

The Sierra Club has drafted a proposed composting policy that supports composting of food waste and green waste, yet opposes the use of biosolids in composting operations. The draft policy supports small and medium sized composting operations as well as processing of materials in anaerobic digesters. In addition, the draft policy supports the development of national statutory compost standards. The draft policy

references the Cornell Waste Management Institute as their only information source, which has historically opposed the use of biosolids for composting and land application. SCAP will continue to monitor this issue and report on any developments.

### **San Luis Obispo County's Regulation of Biosolids Adopted** by Matt Bao, LACSD

On April 27<sup>th</sup>, the San Luis Obispo County Board of Supervisors adopted revised language in the county's master plan that allows for the land application of biosolids. Just two months ago, the Board of Supervisors proposed to revise language in the county's master plan that would prohibit the illegal dumping of biosolids on open space land, but at the same time, allow for the land application of biosolids for beneficial reuse. Prior drafts of the biosolids regulations would have limited land application of biosolids to exceptional quality biosolids only and placed annual restrictions on the amount of biosolids that could be land applied. The next step is a permanent ordinance that would be developed by the County Health Department. SCAP will continue to monitor this issue and report on any developments.

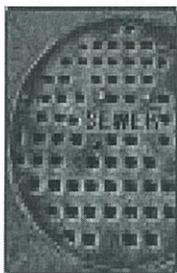
### **Inland Empire Regional Composting Authority receives AAEE Award** by Matt Bao, LACSD

The Inland Empire Regional Composting Authority (IERCA) has received the Excellence in Environmental Engineering Honors Award in Operations/Management from the American Academy of Environmental Engineers. IERCA is a Joint Powers Authority between the Inland Empire Utilities Agency and the Sanitation Districts of Los Angeles County, and is responsible for development of the largest completely enclosed aerated static pile composting facility in the United States. The facility began operation in 2007 and reached design capacity in December 2008. Compost is produced using the aerated static pile composting method, by mixing biosolids with other organic materials. The facility processes approximately 150,000 tons of biosolids and 60,000 tons of wood and green waste per year. All waste materials are received, mixed and composted under negative aeration within the building.

### **San Francisco Compost Giveaway Update** by Matt Bao, LACSD

On May 18<sup>th</sup>, CASA's Greg Kester submitted a letter to Peter Silva, Assistant Administrator of US EPA's Office of Water, requesting support in the form of a strong public statement of the EPA's official position on biosolids management. These efforts stem from the recent petitions to end the City of San Francisco's

biosolids compost program. The letter pointed out that an EPA employee, portrayed as an agency spokesman in media interviews, repeatedly called biosolids unsafe and hazardous. In actuality, this employee does not have expertise in the area of biosolids quality or management, and is protected from EPA sanctions as a whistle blower on an unrelated issue. SCAP has subsequently joined other associations throughout California in sending a letter of support for the biosolids composting giveaway program to the mayor of San Francisco.



## Collection Systems

Chair Sam Espinoza  
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**Collection Systems Committee Semi-Annual Report** by Sam Espinoza, LACSD and Nicole Greene, City of Montclair

The Collection Systems Committee continues to work closely with the SWRCB on the Triennial Review of the statewide WDR and is participating with CWEA on its SSO-WDR Task Force. The committee also continues conducting its informative quarterly meetings with presentations from both the public and private sector of the wastewater industry, as well as providing monthly updates to its members in the SCAP newsletter.

### **Legislative Bills and Regulations:**

In the first half of 2010, the Collection Systems Committee has been busy working on the following issues of concern:

**Statewide General Waste Discharge Requirements (GWDR)** – Committee members have been working with Russell Norman of the SWRCB on the Data Review Committee (DRC) towards input on the GWDR update, including indexing of sewer overflow criteria. SCAP's Bob Kreg has been attending meetings of this review committee and both he and Sam Espinoza have been participating in the conference calls. The second meeting of the DRC was held on March 9, 2010 at OCS. The purpose of the DRC is to review the type of sewage spill data being reported to the California Integrated Water Quality System (CIWQS) to determine if changes are necessary to improve the Monitoring and Reporting Program's effectiveness.

The spill report data is also reviewed to gauge the overall effectiveness of the GWDR in reducing SSOs. The March meeting centered on the topic of what indices of collection system performance should be used to compare collection systems in California. Currently, the most widely used index of collection system performance is the number of spills per 100 miles of pipeline. Most feel that this is not a true indicator of system performance and penalizes smaller systems. During the meeting 10 different indices were proposed. The timeline for completion of the DRC's work is June 2010. The GWDR is tentatively scheduled for release this July.

**Assembly Bill AB 2256 (Huffman) - Product Labeling Flushable Products** - The collection systems committee has also been involved with the drafting and sponsorship of Assembly Bill AB 2256, while working with Assembly member Huffman from Marin County. AB 2256 sets testing criteria for manufactured products that are labeled and marketed as being flushable. Violations can result in a misdemeanor citation and a fine. The bill, which was last amended on April 12, 2010, has passed through the Assembly Committee on Business, Professions and Consumer Protection hearing by a 6 to 3 vote and it is expected that the bill will undergo further amendments as it travels through the approval process. Many SCAP agencies have already expressed their support of this bill.

Although the non-woven industry is currently opposing the bill, SCAP is working closely with their Association INDA and Assembly member Huffman's office to resolve the issues and hope to amend the bill in a form that both sides can support.

**Los Angeles County Voluntary Sewer Spill Prevention Program** - The committee continues to receive updates from Chair Sam Espinoza on the performance of the Voluntary Sewer Spill Prevention Program that was implemented to provide immediate reporting and documentation of sewer overflows within the County of Los Angeles. Participating agencies are the City of Los Angeles, LACSD and the County of Los Angeles DPW. One of the more notable features of this program is that all SSOs must be reported within the first 15 minutes of notification.

### **Other Noteworthy Collection System Issues:**

- Manhole Inspection Programs
- Collection System Utility Marking Requirements
- Inflow/Infiltration Problems for Sewer Agencies
- Fats, Oils and Grease (FOG) Inspections

latimes.com/news/custom/scimedemail/la-me-waste-20100608,0,6206498.story

**latimes.com**

## U.S. Supreme Court upholds Kern County ban on L.A. sewage sludge

**In refusing to review the city's claim, the high court sends the issue back to U.S. District Court for evaluation. The city may re-file in state court.**

By Louis Sahagun, Los Angeles Times

June 8, 2010

The U.S. Supreme Court's refusal to review Los Angeles' claim that a voter-approved ban on dumping sewage sludge in Kern County violates federal interstate commerce laws has plunged the city into a period of municipal distress over the best way to handle its processed human waste.

The petition aimed to quash a Kern County law known as Measure E, which was approved in 2006 to block shipments from Southern California of more than 450,000 tons a year of treated wastes known as bio-solids to Green Acres, a farm the city bought in 1999 at a cost of about \$15 million.

The sludge is tilled into the 4,700-acre farm's soil to fertilize crops, including corn.

The Supreme Court declined to comment last week, letting stand a previous 9th U.S. Circuit Court of Appeals decision that the city and its allies, including the Orange County Sanitation District, lacked standing to sue under the commerce clause of the U.S. Constitution because the case involved transfers of a commodity from one portion of the state to another.

The case has been sent back to Los Angeles U.S. District Court Judge Gary A. Feess, who must decide whether to maintain jurisdiction over remaining state-level claims or allow a state court to handle them.

Those claims are that Measure E is preempted by the California Integrated Waste Management Act, which requires local agencies to recycle their wastes, including bio-solids, and that it exceeds its own police powers by exerting authority over another government entity's operations.

Kern County wants Feess to back out of the case, which would require Los Angeles to start all over in state court. Los Angeles would prefer that Feess retain jurisdiction and reaffirm his 2007 ruling that struck down the ban as unconstitutional.

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Regardless of Feess' ultimate decision, Edward Jordan, assistant city attorney for Los Angeles, has no intention of dropping his legal challenges against Measure E.

"Our position is that it would be a waste of judicial resources to have this case fully briefed all over again in state court," he said. "But we will re-file in state court if we have to. People have a right to have ballot measures, but local governments cannot go against the State Integrated Waste Management Act."

Kern County officials said the ban was intended to protect underground water and the local environment from possible contamination and emissions from diesel trucks. However, campaign slogans such as "Measure E will stop L.A. from dumping on Kern," and "We've got the bully next door flinging garbage over his fence into our yard" suggested that the law was aimed at slamming the door on Los Angeles' sludge.

In its petition to the Supreme Court, the city warned that the 9th Circuit's decision, coupled with the Kern County ban, could unleash discriminatory trade war restrictions among municipalities in the same state. Blocking the transfer of the sludge would also increase air pollution by causing city trucks to haul the waste hundreds of miles to landfills in Arizona at an annual cost of more than \$4 million.

"We've got a \$100-million investment in Green Acres," said former Los Angeles Deputy City Atty. Keith Pritsker. "There is no way we are going to walk away from it."

The case is of particular interest to Steve Fan, manager of the 144-acre Hyperion Treatment Plant, the city's oldest and largest wastewater treatment plant.

The plant, just south of Los Angeles International Airport, receives about 350 million gallons of waste water a day via 6,500 miles of sewage lines. The waste is treated with heat and digested by certain strains of bacteria to produce methane gas, which is used to generate electricity and a substance Fan described as "clumpy and very dark with the consistency of wet cake."

"Each day, 28 trucks depart in the early morning — when there is less traffic — with a total 630 tons of wet cake," he said. "By the time it is applied to the land at Green Acres it is a steaming 120 degrees. It meets all state and federal requirements for bacterial counts and heavy metals. The farm is surrounded with a 500-foot-wide buffer zone."

"We really try to be good neighbors there," he said. "The problem is the general concept, perhaps."

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# Regulatory Trends in Biosolids Management

By Michael Moore, HDR National Biosolids Lead



**S**ustainable biosolids management is a substantial challenge for managers who face a complex set of economic, regulatory and public perception issues. The magnitude of these issues is enormous since there are over 16,000 wastewater treatment facilities in the U.S. producing more than 7 million dry metric tons of solids per year. Managing those solids equates to between 10 and 50 percent of the operating costs of the wastewater treatment facilities.

## Regulatory History

The United States Environmental Protection Agency (EPA) promulgated the “Standards for the use or Disposal of Sewage Sludge,” or 40 CFR Part 503 (Part 503), on Feb. 19, 1993 after four years of debate and public comments.

These regulations were based on decades of academic research, vigorous risk assessment and sound science. Much has happened since 1993, including millions of dollars of additional research trying to prove or disprove that the practice of biosolids management is deleterious to public health or the environment.

To date, all of the credible research has indicated that when the regulations are followed, biosolids product use and recycling is still an option that municipalities should consider. Yet even with all of this sound science supporting the practice of beneficial

reuse, there are regulatory and public perception drivers that move wastewater utilities toward disposal even though in some cases that may be more costly.

## Notable Influences on Biosolids Management

There are a variety of factors and regulatory trends that may influence biosolids management decisions, including inflammatory comments and publications that detract from scientifically-based considerations.

### Beneficial Reuse Detractors

Some of the most notable developments that detract from the beneficial reuse of biosolids include:

- Local bans or severe restrictions on biosolids reuse in communities around the nation, including Class B Land Application, and even restrictions of Class A Exceptional Quality Biosolids Products in some areas
- The Associated Press article on biosolids compost research to mitigate lead contamination in urban Baltimore soils, claiming that “toxic sludge” was thrust upon the innocent. The implication was that this was similar to the Tuskegee Research leaving African-American servicemen untreated for syphilis. Johns Hopkins and the Kennedy Krieger Institute, which conducted the research, took exception to the AP article, which resulted in a retraction and the “re-assigning” of the reporter.
- First Lady Michelle Obama’s Community Garden was criticized by Mother Jones and in online blogs for having hazardous lead levels in the soils from the biosolids compost that was used on the White House grounds 20 years before. The lead levels in the White House soils were found to be 93 parts per million, which is lower than expected in urban soils and safe for gardens. However, this argument is often still used against community use of biosolids compost.
- The San Francisco Public Utilities Commission has been having a successful biosolids compost giveaway program twice a year for many years. But this year the Centers for Food Safety (CFS) and the ReSource Institute for Low Entropy Systems (RILES) petitioned the mayor of San Francisco to “immediately suspend” the practice because the compost “*is made with sewage sludge and contains toxic chemicals and hazardous materials.*” These two groups have solicited political support to call on the mayor to end the compost giveaway program.

(continued on back cover)

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## Biosolids Management

(continued from inside cover)

### Biosolids Regulatory Trends

A number of current and future developments have or will have the potential to change the biosolids regulatory environment, including the following:

- The EPA has conducted a limited monitoring analysis of biosolids for metals, anions, organics, nutrients and polybrominated diphenyl ethers (PBDE, flame retardant); only 84 samples at 74 wastewater treatment facilities. An initial report will be released this spring, followed in the fall with a report on Pharmaceuticals and Personal Care Products. The EPA plans the next steps to include an exposure/hazard risk assessment that may eventually lead to regulatory changes.
- The Sierra Club prevailed over the EPA on the definition of solid waste as it related to the Incineration Rule under the Clean Air Act, meaning that all biosolids incinerators would need to add emission control technologies at considerable expense. This is still under discussion.
- The EPA is considering, and is expected in the near future, to eliminate the pathogen testing alternatives (Alternative 3 and 4) from their Class 'A' Pathogen Requirements. This will cause significant changes to many municipalities throughout the nation that have used these alternatives.
- The EPA is considering lowering the limits on metals and is looking at developing limits on pharmaceuticals, personal care products and other organic compounds

- In California, CalRecycle is proposing to consider anaerobic digesters at wastewater treatment facilities that take in food or green waste as composters. Although counter-intuitive, this change would mean that the treatment facility may have to obtain a Facilities Permit from the Resource Agency.

### Biosolids Sustainability

Biosolids management is a dynamic field that warrants considerable attention because of the solids that need to be processed in every community and the importance of environmental and public health protection for a sustainable future.

Nationally there is a considerable interest in not only utilizing the methane from anaerobic digestion of solids, but also to use the thermal value of the solids for energy production.

There are substantial efforts underway to understand the greenhouse gas implications for the various management options for biosolids. These include carbon sequestration to create carbon credits.

Most municipalities are looking for a way to establish their carbon footprint and to use that calculation to determine whether that footprint needs to be reduced as they look at their sustainable return on investment (SROI). ♦

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