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**ANNUAL REPORT to the
SOLANO COUNTY BOARD OF SUPERVISORS**

LAND APPLICATION OF BIOSOLIDS in SOLANO COUNTY



**Prepared by the BACWA Biosolids Committee
December 2012**

Introduction

With the 2012 application season recently completed, the Bay Area Clean Water Agencies (BACWA) is pleased to present its annual summary report on application of Biosolids in Solano County. BACWA wishes to express its sincere appreciation to the Board of Supervisors and staff of the Environmental Health Division for the recent approval of amendments to Solano County Code, Chapter 25, which permits many of our member agencies to continue to apply biosolids to agricultural land in the County. We believe this partnership provides a valuable resource to the Solano County agricultural industry and provides many Bay Area agencies with an opportunity to cost effectively recycle biosolids and make a positive impact on the environment.

The report which follows provides information on trends in the use of biosolids resources in California and the Bay Area, an update on regional biosolids programs, and specific information on projects and other efforts by individual agencies currently applying biosolids in the County. This report is intended as supplemental information to the report submitted by the County Department of Resource Management staff and by Synagro, contract haulers and applicators of biosolids. In 2012, there were no permit violations, no regulatory issues, and only one complaint of a minor nature involving notification.

This report has been prepared for the Solano County Board of Supervisors in response to the Board's request for an annual update on agency activities and progress towards compliance with the goals set forth in County Code (Chapter 25). The affected agencies have coordinated the required reporting through BACWA to produce a single report for the Board. At the request of staff, this report has been prepared earlier than in prior years to provide information to the Board on a more timely basis.

We would like to acknowledge the assistance of your staff in working with BACWA member agencies throughout the year, particularly Mr. Terry Schmidtbauer, Mr. Jeffrey Bell, and Ms. Misty Kaltreider.

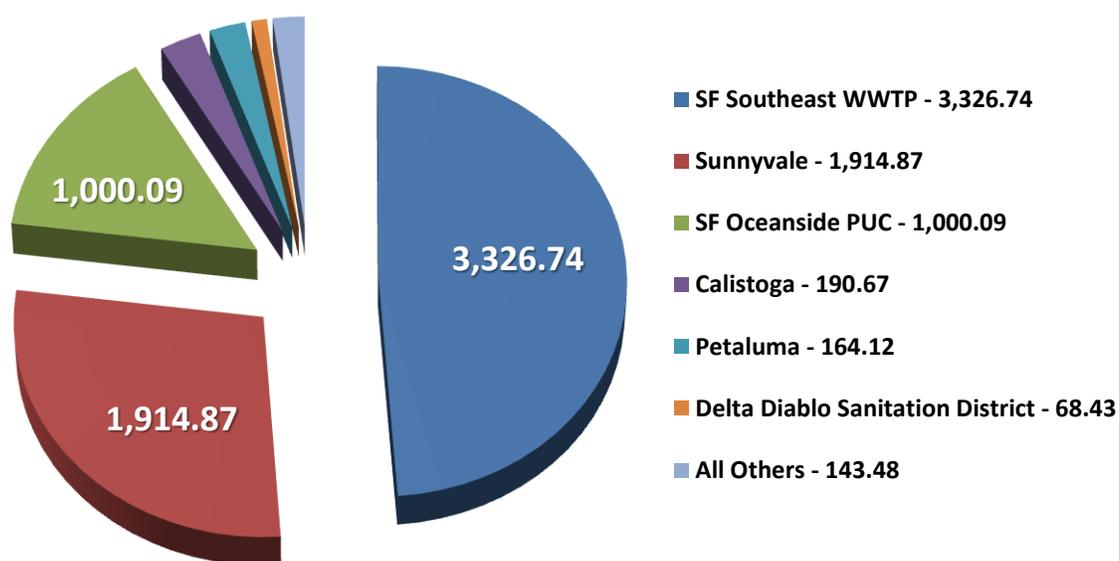
Municipal Agencies Applying Biosolids in Solano County

The application of biosolids provides soil amendments and nutrients to enhance the productivity of the farm land using natural, recycled materials. Each agency that applies biosolids is required to meet strict standards and provides a report annually to the EPA to demonstrate compliance. Several Bay Area agencies currently transport biosolids to agricultural land in Solano County under contract with Synagro. These agencies include the following:

- The City of Burlingame
- The City of Calistoga
- The City of Daly City
- Delta Diablo Sanitation District (serving Antioch and Pittsburg)
- The City of Millbrae
- The City of Pacifica
- The City of Petaluma
- San Francisco City and County
- The City of Sunnyvale
- The City of Windsor
- South Bayside System Authority (serving Belmont, Redwood City and San Carlos)
- Union Sanitary District (serving Fremont, Newark and Union City)

Figure 1 illustrates the quantity of biosolids applied to Solano County agricultural sites in 2012 by each agency, in dry tons per year. The total applied was 6808 dry tons.

Figure 1 – Biosolids Applied In Solano County



(Data provided by Synagro)

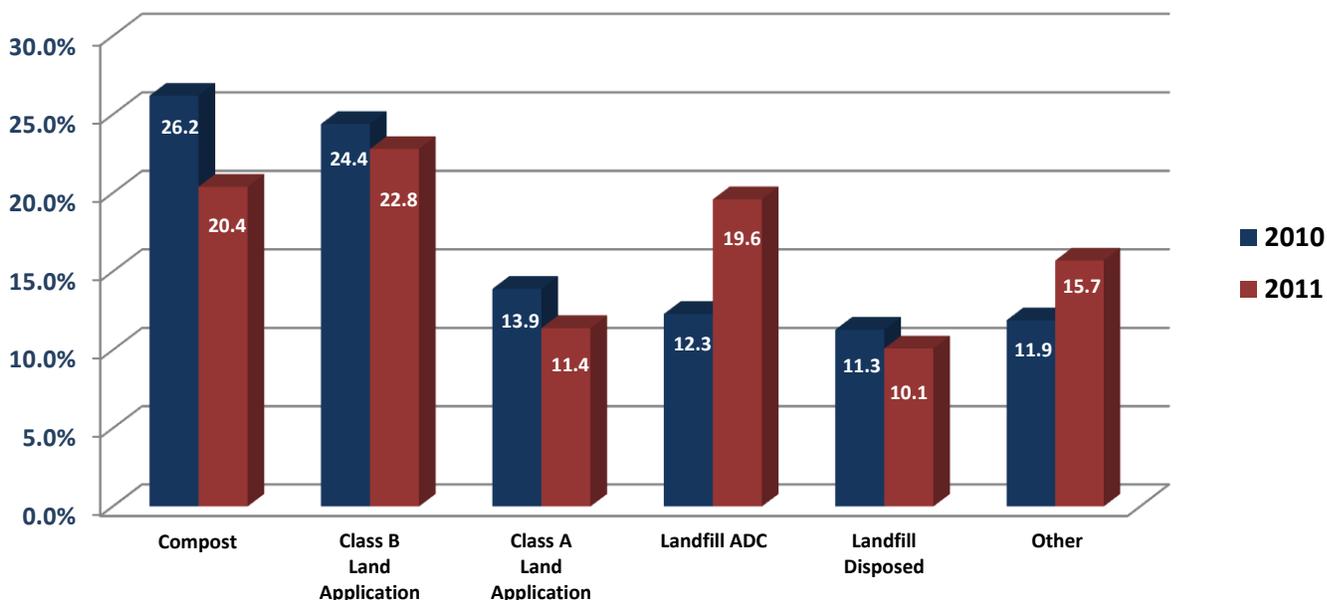
Data provided by Synagro indicates that the total quantity of biosolids applied to agricultural land in Solano County decreased by approximately 900 tons compared to the 2011 application season. This change appears to be due to variations in agency disposal options and varying amounts diverted to other counties for land application.

Trends in Biosolids Usage in California

In general, municipal agencies in California are continuing to explore options for reuse, recycling and disposal of biosolids and are evaluating available technologies for extracting energy and nutrients. Traditional uses still dominate the biosolids landscape, however, primarily due to cost and reliability factors. Other efforts include development of processes for production of Class A biosolids.

Overall Use Summary. Figure 2 summarizes the use of biosolids in California for Calendar Years 2011 and 2010. The number one use statewide continues to be land application in various forms, including compost, Class B and Class A applications. Class B is the largest category. Biosolids have proven to be a safe, reliable and nutrient-rich soil amendment that offers a more cost effective alternative to chemical fertilizers, which are increasingly expensive and very energy intensive to produce. Other significant methods for reuse and disposal include alternate daily cover for landfill and landfill burial.

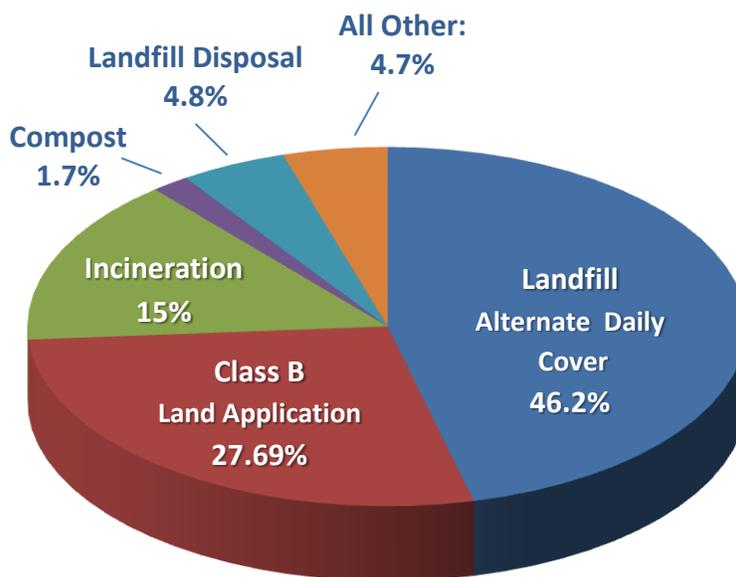
Figure 2 – California Trends In Biosolids Use



(Data provided by EPA Region 9)

Bay Area Trends. In focusing on the Bay Area, Figure 3 illustrates uses of biosolids in the nine Bay Area counties. The primary uses are alternate daily cover for landfill, land application and incineration.

Figure 3 – Bay Area Agency Biosolids Uses – 2011

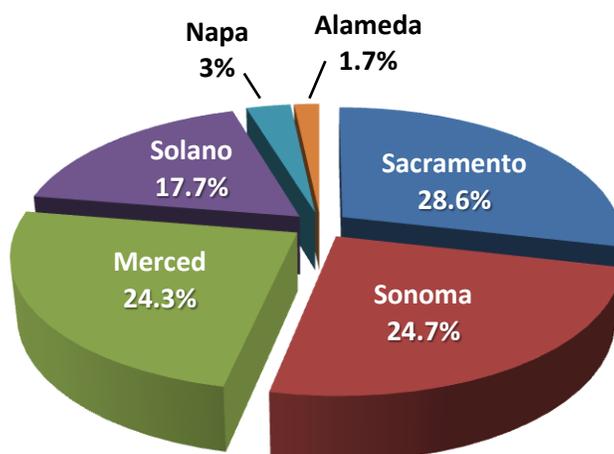


(Data Provided by EPA Region 9)

In 2011, biosolids produced in the Bay Area were ultimately distributed to landfills and land application sites among each of 11 counties. Santa Clara and Solano Counties received the largest shares at approximately 20% each. Alameda and Contra Costa Counties handled 17% and 13% respectively, while Merced and Sonoma Counties received 8% each. Other counties receiving biosolids include Marin, Monterey, Napa, Sacramento, and San Mateo. Total biosolids exported to Solano County were divided between landfill cover and agricultural land application. Approximately 77% were placed in landfill and 23% were land applied.

Biosolids were applied to agricultural land in 6 different counties with Solano County ranking 4th, receiving approximately 17.7% of the biosolids that were land applied. Figure 4 illustrates the distribution of land applied biosolids among the various counties.

Figure 4 – Land Application Among Counties



(Data provided by EPA Region 9)

Bay Area Regional Efforts

BACWA Biosolids Committee. The Biosolids Committee continues to provide proactive support and information sharing to member agencies on regional biosolids issues, projects, and proposed regulations and legislation. This includes support for the development and maintenance of cost-effective, sustainable biosolids management options for the more than 150,000 dry metric tons of biosolids produced in the Bay Area annually. The Committee helps evaluate emerging technologies and provides guidance on best practices in the industry. The group recently published a fact sheet called “Bay Area Biosolids – A Natural Resource”, a copy of which is attached for your information.

Bay Area Biosolids to Energy Program. The Bay Area Biosolids to Energy Coalition (BAB2E) seeks to implement projects employing innovative approaches to utilize biosolids as a renewable energy resource. The Coalition was formed in 2006 to implement a regional approach to diversify biosolids management options, which are presently very limited. Reflecting the growing need for such diversification, the Coalition is expanding. This year, the City of San Jose and the City of Santa Rosa joined the Coalition, bringing the membership to 18 agencies representing a total population of over 4 million.

The current coalition members are:

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| San Francisco Public Utilities Commission | Dublin San Ramon Services District |
| City of Burlingame | Fairfield-Suisun Sewer District |
| City of Livermore | Ironhouse Sanitary District |
| City of Richmond | Sausalito Marin City Sanitary District |
| North San Mateo County Sanitation District | South Bayside System Authority |
| West County Wastewater District | Union Sanitary District |
| Central Marin Sanitation Agency | City of Millbrae |
| Delta Diablo Sanitation District | Vallejo Sanitation District |
| City of San Jose | City of Santa Rosa |

Technology Status Update. While biosolids have great energy potential, the technology to produce that energy is in its early stages of development. Nationwide, only a handful of projects are underway and estimated capital and operating costs are quite high. Some projects have been unable to overcome operational difficulties associated with handling the biosolids. To date there has been no clear “best technology” demonstrated to efficiently extract energy from biosolids on a sustainable, commercial scale. Some alternative innovative technology systems exist; however, they are in various stages of development and none to date have been placed into long-term commercial use.

Technology Development Challenges. Commercial-scale demonstration of biosolids to energy (B2E) requires large capital investment that is difficult to obtain without a revenue stream; yet agencies cannot commit a revenue stream without commercial-scale demonstration. BAB2E goals are closely tied to state and federal policy goals of renewable energy development and Green House Gas reduction; and the state and federal government have an interest and role in addressing this challenge by assisting with the funding gap in order to assure development of this resource. The Coalition has therefore sought to develop partnerships and support, both regulatory and financial, for biosolids to energy. Over the last 2 years, the Coalition has met with state and federal elected officials and agency representatives from the Air Resources Board, CalEPA, CalRecycle and the California Energy Commission. Administration officials have been very receptive to the goals of the project. In 2011 the California Energy Commission allocated one million dollars in Public Interest in Energy Research (PIER) funding to help fund a demonstration project for one of the proposed technologies. The private match funding (eighty percent of the total project cost) the technology provider was to contribute fell through; and BAB2E is presently working with the CEC to identify an alternative demonstration project.

Request for Qualifications and Project Solicitation. Through a Request for Qualifications process, BAB2E has short-listed four companies with promising technologies. BAB2E has adopted a framework for a solicitation for a commercial scale project to convert biosolids to energy. Work is proceeding on preparation of solicitation documents.

We will continue to keep the County Department of Resource Management staff informed of the progress of the program.

Individual Agency Programs

Individual BACWA agencies are responsible for their own biosolids management programs and each develops its own plan in addition to participating in regional programs. Below are program highlights for many of the participating agencies. Note that while Fairfield Suisun Sewer District does not apply biosolids to agricultural land in the County, they are an active participant in both the BACWA biosolids committee and the Bay Area Biosolids to Energy Coalition.

San Francisco PUC. The San Francisco Public Utilities Commission (SFPUC) – Wastewater Enterprise marked its thirteenth consecutive season of land application of Class B biosolids in Solano County. Inspectors from the SFPUC make monthly trips up to Solano County to ensure that our contractors are following local regulations. In addition to Solano County, the SFPUC also land applies Class B biosolids in Sonoma County. As of June 2011, the SFPUC entered into a three-year contract with Synagro to divert 5,000 and 10,000 wet tons/year to Synagro’s Central Valley Compost Facility in Merced County. For the past twelve months (October 2011-September 2012), the SFPUC has diverted approximately 6.1% of the total biosolids to this Class A option. During the wet-weather season (October 15 – April 15), the biosolids from both plants are stored in a lined storage area at Hay Road in Dixon landfill for beneficial use at the landfill facility during the next dry-weather season.

Construction will be starting in November 2012 for upgrading the digestion process at the Oceanside Water Pollution Control Plant to a two-stage thermophilic/mesophilic process known as TPAD that will generate Class A Biosolids as defined by the 40CFR503 regulations. The SFPUC is proceeding with its multi-billion Sewer System Improvement Program <http://sfwater.org/index.aspx?page=116> that includes as one of the keystone projects a complete rehabilitation/reconstruction of the Southeast Water Pollution Control Plant’s Biosolids processing facility. The Request for Proposals for the treatment plant upgrade will be issued in the next few months. While the final design is some years off, one of the levels of service that was endorsed by the SFPUC Commissioners is to achieve economic and environmental sustainability by continuing to reuse 100% of biosolids. To achieve this goal, the new facility will be designed to produce 100% Class A biosolids. The estimated cost is between \$1.4 and \$2.0 billion.

The SFPUC continues to actively participate in the Bay Area Biosolids to Energy Coalition.

Sunnyvale WPCP . The City of Sunnyvale contracts with Synagro for the removal and reuse of biosolids from the City’s Water Pollution Control Plant (WPCP). Synagro is also under contract for a long-term project to remove accumulated sediments from the WPCP’s oxidation ponds. Biosolids generated from the normal treatment process and from the pond sediment removal

project are applied to farmland in Merced, Sacramento, and Solano counties. Biosolids may also be disposed of at a permitted biosolids monofill constructed at the location of the former Sunnyvale landfill. For the 12-month period ending October 2012, the quantity of biosolids from the Sunnyvale WPCP that were land applied in Solano County was 9013 wet tons (1915 dry tons).

The Sunnyvale WPCP currently produces Class B biosolids. The production of Class A biosolids was identified as a goal in the City's 2010 Strategic Implementation Plan for the WPCP. Facilities to produce Class A biosolids were incorporated into several of the conceptual alternatives described in that Plan. Future, more detailed master planning efforts will further evaluate Class A biosolids production.

Burlingame. The City of Burlingame Wastewater Treatment Facility continues to contract with Synagro to land apply biosolids to farm land in both Sacramento and Solano Counties. The City of Burlingame is currently diverting approximately 10 to 15% of its biosolids to Merced County for composting and will continue to incrementally increase the amount diverted each year. The City continues to actively participate in the Bay Area Biosolids to Energy Coalition. In FY 12/13, The City of Burlingame invested in a centrifuge to reduce the amount of water content of its biosolids to position itself as an acceptable product for the Bay Area Biosolids to Energy Coalition facility.

Delta Diablo Sanitation District (DDSD). The District continues to lead and actively participate in the Bay Area Biosolids to Energy Coalition. DDSD continues to contract with Synagro to land apply biosolids to farm land in both Sacramento and Solano Counties. In 2011 DDSD diverted approximately 7% of its biosolids to Merced County for composting and has contract provisions to incrementally increase the amount diverted each year by mutual agreement. In 2012 to date (January through October) DDSD has sent 4.5% (299.3 wet tons) of total biosolids produced to composting. With the new reporting deadline, data is not yet available for November and December, months when composting rates have been the highest. For reference, during January through October of 2011, a total of 3.8% of DDSD biosolids had gone to composting. We therefore expect 2012 composting rates and overall volume will be higher than last year.

Millbrae: In 2011 the City of Millbrae continued to contract with Synagro to land apply, compost biosolids or use as ADC. We also continue to participate in the Bay Area Biosolids to Energy Coalition (BAB2E) seeking further reuse and disposal options. The City continues to accept restaurant grease trap waste (brown grease) for digestion as we continue to observe a sustained 16% reduction in total biosolids generated with its addition.

North San Mateo County Sanitation District (Daly City) continues to contract with Synagro to land apply biosolids to farm land in both Sacramento and Solano Counties. NSMCSD is currently diverting approximately 10 to 15% of its biosolids for composting and will continue to incrementally increase the amount diverted each year. The District continues to actively participate in the Bay Area Biosolids to Energy Coalition. In FY13, NSMCSD will be conducting a

study to further evaluate available biosolids reuse and disposal options for future planning purposes.

The City of Pacifica Calera Creek Water Recycling Plant (CCWRP) continues to contract with Synagro to land apply biosolids to farm land in both Sacramento and Solano Counties. In 2012 they produced Class B biosolids in January and February. From March to present, the facility has produced Class A biosolids. CCWRP is currently diverting approximately 20 % of its biosolids to Merced County for composting. In FY 13/14 CCWRP will be conducting a study on reuse of Class A biosolids.

South Bayside System Authority (SBSA). The South Bayside System Authority (SBSA) continues to land apply the majority, approximately 70%, of its biosolids to farm land in Sacramento and Solano Counties via our contract with Synagro. SBSA also diverts approximately 15% to 20% of the Authority's Class B biosolids to a compost facility in Merced County and a small percentage, between 10% and 15%, is used as Alternative Daily Cover (ADC) at nearby landfills. SBSA is participating in the efforts of the Bay Area Biosolids to Energy Coalition to identify and implement other methods of biosolids disposal. SBSA is also investigating alternative drying methods and potential uses for biosolids independently, in the event regional efforts do not meet our long-term needs.

Union Sanitary District. Union Sanitary District also continues to contract with Synagro to land apply biosolids to farm land in both Sacramento and Solano Counties. USD is currently diverting approximately 25% of its biosolids to Merced County for composting and will continue to incrementally increase the amount diverted each year. The District continues to actively participate in the Bay Area Biosolids to Energy Coalition.

Bay Area Clean Water Agencies appreciate the opportunity to present this report for your consideration and will work with staff to address any questions you may have regarding the above information.

Attachment: Biosolids Fact Sheet