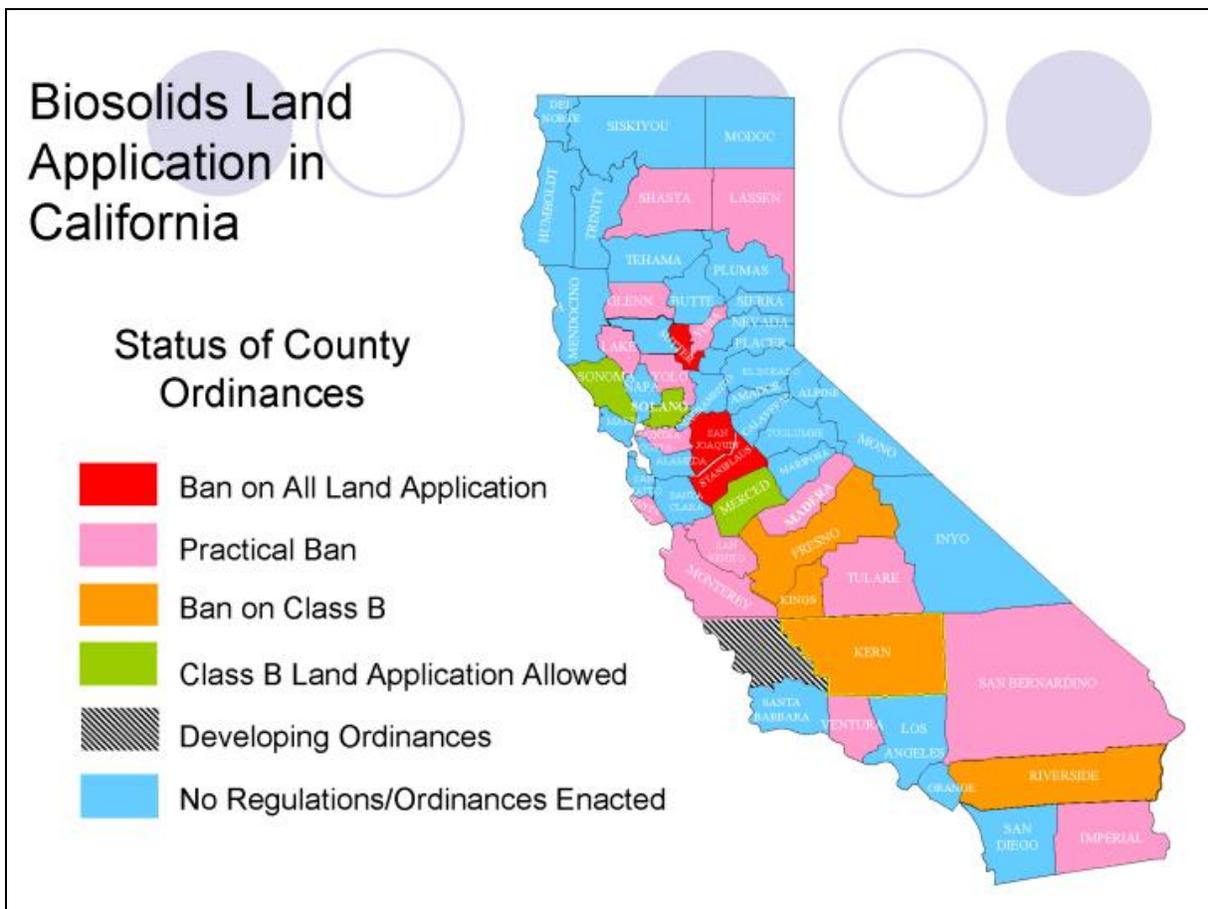


IERCA - A Regional Approach to Sustainable Organics Management

Need and Development

Publicly Owned Treatment Works in southern California face ever-increasing challenges to biosolids management. Landfill capacity is diminishing, land application is effectively banned in much of California, as shown below, and the South Coast Air Quality Management District (SCAQMD) rules make it difficult to dry or compost biosolids. To overcome these obstacles, the Inland Empire Utilities Agency (IEUA) assembled a multi-agency/discipline Organics Management Expert Panel and developed an award-winning Organics Management Business Plan. The IEUA and the Sanitation Districts of Los Angeles County formed a Joint Powers Authority (JPA) in 2002 to develop a local solution that is both environmentally sound and cost-effective.



The JPA, called the Inland Empire Regional Composting Authority (IERCA), implemented a Programmatic Environmental Impact Report and determined that recycling biosolids locally into a high quality compost product was the best approach to overcoming the challenges of biosolids management. The IERCA purchased a 413,000-ft² vacant warehouse in Rancho Cucamonga, California, that was identified as a feasible site for the largest completely enclosed, aerated static pile composting facility in the United States.

The project partners in 2001 accepted the preliminary design report, design was completed in 2002, and the construction contract was awarded in 2003. IEUA and the Sanitation Districts' staff provided project oversight. Construction began in 2003 and was completed in 2007 at a cost of \$75M. The facility began operation in 2007 and reached design capacity in December 2008.



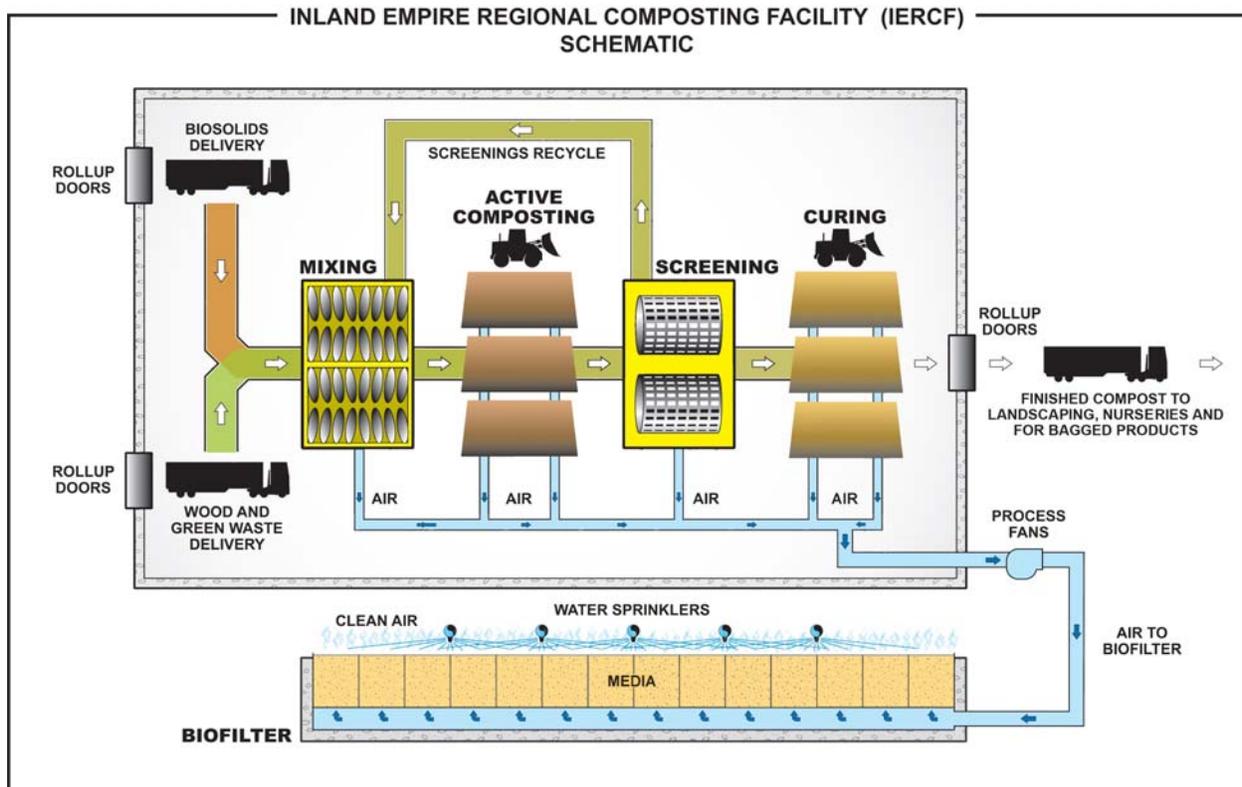
The 413,000 ft² warehouse in 2003 before new construction (left) and in 2007, just before the start of daily operations (right).



On the roof of the Inland Empire Regional Composting Facility are over 6,000 solar panels that can produce up to 1 megawatt of electricity. The biofilter occupies over 3 acres at the lower portion of the photograph. To the left is a compost storage facility, able to hold up to 3 months' production as needed in winter, when sales typically slow.

Description

Compost is produced, using the aerated static pile composting method, by mixing biosolids with other organic materials. The facility processes 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. The IERCF consists of several major processes, as illustrated below.



The composting process takes approximately 60 days. Both the biosolids and wood/green waste are received indoors in the receiving and mixing section. Trucks enter the building through high-speed roll up doors that close after each entry, preventing odors or dust from escaping. The material is blended and conveyed to the active composting section, where loaders place it onto the concrete floor. Air is pulled down through the pile, to control temperatures and keep the composting microbes healthy, through hundreds of small air grates on the floor. Active composting lasts approximately 22 days, after which the material is cured for another 30 days. After curing, the compost is screened and ready for distribution. Larger screened material is recycled to the beginning of the composting process to act as an inoculum and a carbon source, reducing the need for additional wood products. In addition, the rejected

material, along with the woody incoming material, provides structure within the compost allowing air to move easily through the piles.

The air that is pulled through the piles is sent to a biofilter. Additionally, all air within the enclosed building is captured, allowing for effective air emissions treatment and reduction of odors. Air is exchanged within the building at least 6 times per hour to create a safe working environment, and is also routed to the biofilter. The biofilter is comprised of approximately 50,000 cubic yards of wood chips, covering over 3 acres. It treats up to 600,000 cfm, removing over 95% of the volatile organics and 100% of the ammonia, exceeding SCAQMD's requirements.



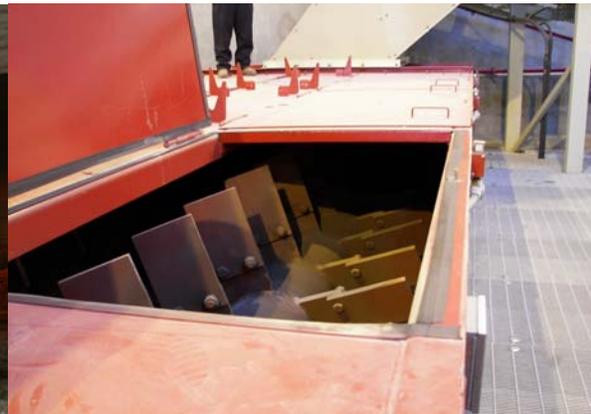
Trucks back completely into the building and the doors close while they unload. The facility accepts over 25 truckloads per day, 365 days per year.



Biosolids are offloaded directly into receiving hoppers.



Woody amendments are loaded into hoppers prior to mixing with the biosolids.



Biosolids and amendments are blended in pugmill mixers before being conveyed to the active composting section.



Blended feedstocks are placed into compost piles over air grates that pull air through the pile to control temperatures and supply oxygen to the microbes.



Fans, located in corridors within the building, pull air from the piles and exhaust it to a biofilter.



The biofilter contains over 50,000 cubic yards of chipped wood material piled onto a perforated floor. The facility exhaust air slowly travels through the 8-foot deep x 3-acre biofilter where odors and regulated compounds are removed.

Health and Safety

One of the most unique challenges at the enclosed facility is maintaining a safe work environment. Containing emissions (typically vented to the atmosphere in outdoor composting methods) inside a building before treatment requires a high level of capture efficiency to ensure a safe working environment. A health and safety team conducts periodic tests to verify safe working conditions. To date, there have been no major safety issues of concern at the IERCF.

Marketing

SOILPRO Products

A critical factor in the success of the project was the branding and marketing of the finished product, called SoilPro, which began two years before startup, and included a pilot project to optimize the composting process and create finished product samples. Several companies purchase SoilPro compost for a variety of direct and retail uses. Kellogg Garden Products bags the product for sale in the western United States to large retailers such as Lowe's and Home Depot. Other customers use the product to prepare soil for turf and other plant materials. Demand for the high-quality product has exceeded expectations, ensuring that all is sold and that the facility maintains its throughput goals.



Trucks line up to purchase SoilPro compost products. Sales average 20,000 cubic yards per month – about 350 truck loads.



SoilPro sales staff attends tradeshows and workshops to network with potential customers.



This is an actual example of a landscaping project that uses SoilPro compost to create a better-looking landscape, requiring less fertilizer and water.

Sustainability

The IERCA Board of Directors ensure that the IERCF operations are both environmentally sound and cost-effective. Project success is demonstrated through competitive overall costs, compared with other biosolids management options, and local demand for the product. Use of compost in landscaping reduces water needs. Project proximity to the wastewater management facilities and end uses reduces truck traffic and related environmental impacts. Over 6,000 solar panels were installed onto the roof providing up to half of the power required during peak operations. Recycled water supplies all of the irrigation, biofilter maintenance, and process control needs.

Successful Partnership

The IERCF represents a major achievement, and IEUA and the Sanitation Districts work well together in providing key skill sets. Some of the notable accomplishments include:

- Creating a unique inter-agency partnership to develop a regional approach for recycling something that is otherwise treated as a waste;
- Developing a local facility to avoid the use of natural resources and air emissions associated with hauling materials to more distant locations;
- Overcoming significant technical hurdles associated with developing a facility of this size by modifying an existing building for composting operations;
- Implementing state of the art environmental controls such as fully enclosing the composting operations, treating all air emissions through a biofilter, and use of quick opening doors to reduce air emissions and odors;
- Producing a high quality, desirable product that has environmentally beneficial characteristics; and

- Operating the facility cost-effectively and in accordance with regulatory programs.