



Environmental Management Programs Final Report **(Fiscal Year 2007)**

This report summarizes the results of our Environmental Management Programs (EMPs) in meeting the Waste Reduction and Disposal Division's (WRAD) objectives and targets for the fiscal year 2007 (July 2006-June 2007).

The following list of objectives and targets were developed and implemented into our environmental management program for FY 07:

Objective: Mitigate fecal coliform impacts within the Greenery operation.

Target – Prevention of fecal coliform blooms from Greenery operation migrating off-site.

Objective: Determine feasibility of steam bio-reactor technology to increase bio-degradation thereby consuming the biodegradable constituents of buried solid waste and reclaiming the space for additional solid waste capacity.

Target: Undetermined until feasibility is established.

Objective: Support landfill capacity conservation

Targets:

- 1) Support Department level efforts to secure contract lease and regulatory permit amendments to increase the height of the final grade of the landfill thereby increasing capacity and useful life by approximately four years.
- 2) Complete purchase, training and implementation of tarp machine for use as daily cover.
- 3) Support Department level efforts to contract with a private entity to build and operate a Construction and Demolition (C&D) facility at the landfill.
- 4) Support the public tip-deck recycling pilot in efforts to divert recyclable materials prior to disposal in the landfill.

Results

The results of the objectives and targets set for this year were mixed due to several factors including; new technology testing, timelines for agency responses out of our control, City government transition, and site constraints impacting specified targets. The remainder of this report describes the results of our efforts for meeting our Environmental Management System's (EMS) objectives and targets.

Positive Impact (Continuous Improvement)

Fecal Coliform mitigation within the greenery is a continuation of the FY06 environmental management program designed to identify and mitigate bacteria risks to the environment from within the Greenery operation at the Miramar Landfill. The risks have been identified and mitigation proposals have been investigated including; a proposal to use a polymer that is inserted into the invert of drainage channel pipes to

"explode" the cell walls of bacteria. This idea has been abandoned due to high cost of the product in conjunction with its susceptibility to trap silt making the product inert. There is high silt content in the storm water due to the nature of the cover material capping the landfill and this product would more than likely reach capacity after one storm event.

In addition, the use of Quaternary Ammonium for land application as a bactericide to control fecal coliform in the Greenery has been investigated. The idea was to spray the Greenery deck prior to a storm event in hopes that this will retard or eliminate the fecal coliform bloom customarily seen right after a storm event. This idea has proven prohibitive from a regulatory approval standpoint as the product was designed for non-porous surface decontamination in the food service and medical environments. There is no current regulatory guidance regarding use of this product on porous surfaces such as soil therefore we are suspending consideration of this option until regulatory approval issues are resolved.

Current best management practices (BMPs) have mitigated the potential as much possible within the current location of the Greenery. Additional control measures are not feasible at this time as the site is scheduled to be moved to another location upon approval of the landfill height increase application. The new location will be offset from the haul road and will have storm water BMP controls built in including run-on and run-off mitigation measures.

Resource Conservation (Continuous Improvement)

Steam Bioreactor Pilot

The steam injection bioremediation pilot project came to a conclusion with limited success. STI Engineering field operations issues were resolved including the filtration and steaming of leachate, scaling of piping and system right-sizing and continuous steaming was achieved toward the middle stages of the project. The STI team developed a blend of landfill gas condensate and leachate as their primary water source for steam generation. The blended product seems to have mitigated the particulate issues encountered with the leachate only option. However, due to the arid climate and minimal rainfall to date throughout the trial period the amount of leachate generated combined with the gas condensate has not been sufficient to allow for continuous operation of the steam generator. However, optimum temperatures for anaerobic biodegradation have been achieved within the test area and have been sustained as long as a steam source was available.

Although the sustained increase in temperature at depth suggests increased microbial activity, there has been no appreciable observable evidence of landfill settlement in the test area. In addition, the arid environment and limited leachate generation within the entire lined section of the landfill make the requirement for an additional water source mandatory for continuous, expanded operation. The additional water requirement coupled with the need for modification to the operating permit, the limited amount of time and space remaining for active landfill operations and no evidence of subsidence makes this technology impractical for this particular site.

C&D Facility

SANCO (EDCO), opened a C&D recycling facility in Lemon Grove in January 2007. It is approximately eight miles from downtown and is just outside the City's boundary with Lemon Grove. While not equidistant to all parts of the City, it is closer to downtown, where much of the development is occurring, than the proposed City facility at the Miramar Landfill. The operator estimates that approximately 80% of the facility's capacity could serve the City of San Diego. If fully utilized, this is equal to an increase to the City's waste diversion rate of 4% to 5%. In light of this development the proposed C&D facility is being reevaluated. It looks as if the private sector will take the lead saving the City the additional costs for permitting and developing the public/private partnership facility at the landfill.

Tip Deck Diversion

Diversions rates under this program exceeded 1,800 tons since inception of the program in November of 2005. With the success of the tip deck diversion program well documented, the recycling bins have been moved off the tip deck to a more permanent location just past the fee booths upon entering the landfill. This eliminates the need to move the bins as the tip deck changes during landfill operations, shortens the customers transport time, providing more public awareness and hopefully participation in the diversion program.

Tarp Machine

The tarp machine has been in operation for almost the entire year. The use of the tarp machine has allowed for a wider tip face thereby increasing vehicle spacing and reducing the potential for accidents and traffic congestion. In addition, it has allowed for the saving of nearly 89,000 cubic yards of landfill capacity with a cost savings of over \$2 million dollars annually. The total cost of the machine was recovered in 17 days. In addition, the dirt saved by using the tarp will now be available for top deck cover as we extend the height of the landfill.

Conclusion:

Though we met with limited success in some areas, we did see progress in others and as such we will continue to look for ways to improve our environmental performance. The Waste Reduction and Disposal Division hired a consultant to look at all options for increasing the life of the landfill. As these potentialities present themselves we will evaluate them as potential new objectives and targets and incorporate them within our Environmental Management System.