NEOZYME CASE STUDY
ODOR CONTROL APPLICATION
Major Municipal Anaerobic Sludge Dewatering Facility, USA, 1995

Preliminary Draft Report, December, 1995

INTRODUCTION

Controlling odor nuisance from dewatered sludge that is air dried continues to be a priority for sewage treatment plant operators. This case study examines the positive effect of adding the Neozyme product, ECOSYSTEM PLUS, to the sludge slurry at the sludge drying facility on Fiesta Island in San Diego, California. This is a preliminary draft report. The final report is being prepared by the University of California, Irvine. Once completed, this report will be available to interested parties.

FACILITY DESCRIPTION

The facility on Fiesta Island receives anaerobic digester sludge from the Point Loma sewage treatment plant. Point Loma treats 180 million gallons of wastewater per day from residential, commercial, and industrial sources. The plant's wastewater undergoes primary settling with a chemical additive. Settled solids are then pumped to anaerobic digesters and the supernatant is pumped to an ocean outfall three miles from the shore. After digestion is complete, approximately 1.1 million gallons of liquid sludge is pumped eight miles to Fiesta Island where it is dewatered and placed in drying beds to stabilize and reduce water content up to 50%. Belt presses are used to dewater the sludge before it is deposited onto the drying beds. The 15 drying beds are an average size of 65 meters (m) X 125m and sludge is initially piled 1m high. Once turned, the sludge depth is reduced to 0.7m. Sludge is turned in the drying beds either daily or every other day as staffing permits for the first 15 days. Thereafter, it is turned weekly and piled into wind rows. Within 21 days after the drying bed is filled, the sludge is loaded onto a truck for transportation and disposal at a landfill.

TREATMENT SCHEME

This study was conducted over a period of eight weeks during late September, October and early November of 1995. During this time, ECOSYSTEM PLUS was injected at a dose rate of 139L per day into an average of 4,167m^3 per day of sludge from Point Loma. Product was injected directly into the sludge slurry immediately before it was dewatered on the belt press. An immediate drop in ammonia odor was observed and the odor remained undetectable for 14 days in the piled sludge within the drying beds.

RESULTS AND DISCUSSION

Prior to this study, the facility and the neighboring resort hotels received odor complaints which varied with the season. During the summer (July, August, and September) when temperatures are high and moisture is low, an average of 100 complaints per month were received from residents in the area. By contrast, in the fall (October and November) and the spring (March, April, and May) complaints dropped to an average of20 to 30 per month.

This study successfully showed that odor can be substantially controlled in a sludge processing facility. Neozyme believes, with further development, it is likely that odor can be further reduced or eliminated over the entire 25-day drying cycle. A total reduction in odor of over 50% of the drying period demonstrated a substantial improvement during the course of this study while odor complaints were reduced by at least 95% (one per week). The remaining odor seemed to be generated by the existing inventory of sludge that was not treated before the ·study began. The operators of the sludge facility were so encouraged by the results they asked Neozyme International, Inc. to return and continue its efforts.

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