FORCE Quarterly Report **December 29, 2004**

Project: GOC-Vapor Odor Control for Biosolids Tipping Floors and MSW Transfer Station.

Project Manager: Bob Broom

Period Covered: Oct, Nov, Dec, 2004

Actions:

June 23-25

A facility visit with Joan Bradshaw and Chuck Jett to discuss the possibility of amending the project. The change would include new equipment, which had recently become available. Chuck Jett confirmed additional installation requirement would be available, notably, a 460V 3-phase power supply.

Since the original proposal was submitted ten months previously, new technologies had emerged in the industry warranting modifications in the FORCE grant project. I outlined justification for project modifications and the resulting benefits of these upgrades:

GOC's product "GOC 910UV" was adapted to perform in tandem with equipment manufactured by the Florida based odor control company, Hinsilblon. The two new products are Evane/Zyme and Evane Scent (EZ-ES). The delay in starting the demonstration has enabled the new combined GOC – Hinsilblon product and equipment to be available for use in the FORCE project.

The scope and duration of the project were unchanged. The new hardware is more appropriate for an industrial "outside" application and has been adapted from existing Hinsilblon equipment which has demonstrated long term reliability. Since installation, this decision has been proven judicious. In particular the transfer station is a brutal environment to operate any equipment; the transfer station system was found buried in garbage during the Dec 10 visit, but still running. The treatment products EZ-ES have the same active ingredients as GOC 910UV and therefore the performance is expected to be unchanged. Both products will be tested, also a combination of the two products.

Cabinet with HDLA 100 Vapor System

The primary benefit of the equipment change was assessed as both economic and system reliability. The monthly cost for treatment of the two site areas will be lower. Operating costs are being assessed but it is expected to be in the order, post trial, at less than $3,000 per month to treat both areas.

In conjunction with the Sumter staff it was agreed to focus more on the full treatment of the biosolids tipping area. Treatment of the MSW Tipping Building will be limited to one door on the eastern side of the building; this door faces the closest domestic housing area and is also in the path of the prevailing wind.

A safe location for the equipment away from moving wheel loaders and trucks was identified. The location had good access to a 115/1/60 14.5 amp power supply.

Trailer with HDLA 300 Vapor System

The Biosolids tipping area is located at the southern end of the building, it is an open sided structure-- 100,000 cu ft (60'x 50'x 35'). The odor from the tipping area is very unpredictable; Sumter has minimal control over the content of the arriving loads. For this reason, again in consultation with the Sumter staff, it was decided to oversize the equipment to include a 3-Hp Vapor system. The system's capacity allows Vapor to form a curtain barrier on one side of the biosolids tipping area extending on multiple levels from the building wall to the end of the loading hopper. The 460/3/60 7.9 amp power supply was available in the location but a breaker box had to be provided by Sumter.

Oct 18

Travel by truck from Norfolk Virginia with tools and equipment needed for the installation.

Oct 19

Continue travel to the Sumter site

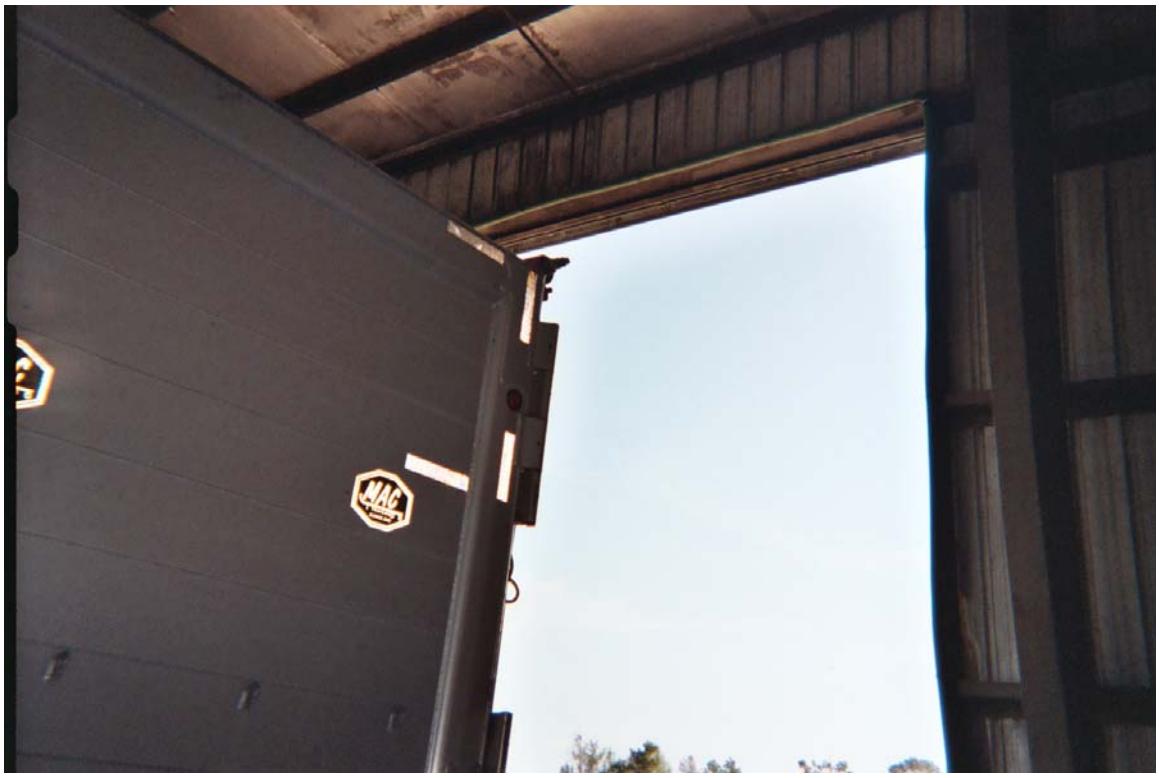
Oct 20

Project deliverables were collected from the Hinsilblon factory in Cape Coral and from a Hinsilblon subcontractor in Tampa; the equipment was loaded into two trucks and two trailers. The equipment included a 3-Hp system trailer, the 1-Hp unit in an aluminum cabinet, and 400ft of flex hose and fittings. The product, 1x 55-gal drum of

Evane Zyme and 1x 55-gal of Evane Scent were delivered to the site by common carrier.

Oct 20 - 21

The location of the Hinsilblon HLDA100 system was changed to an area outside of the Sumter transfer station because access to the door between the transfer station and the MRF was impeded. The Sumter staff offered a new location in a protected corner. The new location required an extra 15 ft of 2" flex hose which, it is anticipated, will not affect system performance; the total length of hose, which completely covers the eastern truck access door, is 70ft.



Eastern doorway in the transfer station

Nozzles are not required with the GOC Vapor system. The HLDA100 system Vapor is distributed using 2" HDPE piping, flex hose, and Camclock fittings. A local electrician installed a 115V power supply box on the wall adjacent to the system; the system was hard wired to the power supply. A 2" flex hose run from the unit was routed over the top of the door, back into transfer station. A man-lift was used to install the hose around the 15ft high doorway. Holes were drilled in the piping (3/16 inch diameter) to release the vapor where it is needed. The systems is capable of operating 24 hours per day, seven days per week, but the site manager decided to run the system during working hours only. At the managers discretion the system will be run overnight or at weekends if an odorous load remains in the transfer station.

HDLA100 System during installation

HDLA300 System During Installation

In the biosolids tipping area Vapor is distributed around the area using 3” HDPE flex hose and Camclock fittings, powered by a HDLA300 Vapor System. It was decided that treatment should be concentrated in the areas that are expected to generate the most odor. At Sumter the biosolids are delivered by truck and dumped into a holding area. A wheel-loader then moves the biosolids to a hopper, and then a conveyor moves them to a mixer for loading into the tube. The hopper and the conveyor were considered the highest priority. The original design of the system placed the HDLA300 in the center of the conveyor area. The physical size of the trailer made this location impractical as movement of other equipment would be restricted. A new location next to the MRF wall did not interfere with other operations. It also had the advantage of being easier to provide the 460/3/60 7.9 amp power supply. From this location the 300 ft of 3” flex hose was coupled together to form the vapor wall. In addition, approximately 40ft of 2” hose was run down the conveyor support legs to bring some treatment down to ground level. Holes were drilled in the piping (3/16 inch diameter) to release the vapor where it is needed. More holes were drilled in the hose run along the top of the hopper and along the hose adjacent to the conveyor belt. It is simple to make adjustments to the distribution of vapor by either drilling more holes or sealing existing holes with tape

3” Flex Hose run along the rim of the hopper two runs along the conveyor.
2” flex hose runs down from the top of the conveyor

Checking on the operating pressure in the HDLA300 System

Oct 21

Both Systems were charged with Evane Scent and run to prove the operation. After drilling some additional holes the system pressure and amperage, for both systems, were within tolerance. The installation was therefore considered successful.

Record Keeping: There are insufficient funds to measure any change in specific odorous compounds, all record taking is therefore subjective. The site manager (FL Boy) and the facility manager agreed to keep records. After discussions with Joan Bradshaw and Chuck Jett, sheets were designed to record system consumption, hours of operation, and incidents. Copies of the record sheets are attached.

Oct 22

Return by truck to Norfolk, VA

Oct 25

Finalize record keeping documentation. Joan Bradshaw provided the finished forms to the site.

Nov 5

Post installation service of the system. The site had a problem with the voltage overload protection switch which had tripped on several occasions. Chuck Jett promised

to investigate the facility power supply; it was consider likely that facility power surges caused the problem.

Nov 9

In the biosolids area, the HDLA300 system pressure drifted to a higher level than specified. This puts unwanted pressure and therefore potential ware on the blower motor. To reduce the pressure some additional hoses were drilled. This was successful. Sumter had not identified any power surges following an investigation of the voltage overload problem. It was therefore decided to change the voltage overload protection switch on the HDLA300 system to one with a wider voltage tolerance. A new switch was ordered.

Nov 15

A new voltage overload protection switch was installed in the HDLA300.

Nov 16

Service call to check on the operation of the new overload switch. The system had run since yesterday without cutting out. The facility may still have voltage surges but the system is now able to run continuously; or, the old overload switch was defective. In either case the problem is solved.

Nov 22

Service call. Again the HDLA300 system was running at a slightly higher pressure than desired. Additional holes were again drilled and the pressure reduced.

Dec 01

Service call. System pressure and operations looked fine.

Dec 7-10

Visit from Norfolk to check system records and operation.

Dec 8

Change treatment product from Evane Scent to Evane Zyme. Refill both systems. All operations appear normal. Both systems are operated manually by the site managers at the start and end of each working day. There have been no odor complaints during the operation with Evane Scent.

Dec 9

Attend the FORCE TAG meeting at Bushnell.

After the TAG meeting the Sumter system was shown to Chris Snow of Hillsborough County.

Dec 21-29

Prepare quarterly report.

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