# CITY OF RAPID CITY

**Public Works Department**
**Solid Waste Division**
300 Sixth Street
Rapid City, SD 57701-2724
Telephone: (605) 355-3496 FAX: (605) 355-3092
Email: karl.merbach@rcgov.org


## MEMORANDUM

TO: Mayor and City Council

FROM: Karl Merbach

CC: Terry Wolterstorff, Mayor's Group

SUBJECT: Odor Control at Rapid City Landfill- Public Works Committee Update

DATE: January 2, 2013

The intent of this correspondence is to update the Mayor and City Council on ongoing and long-term odor control efforts at the Rapid City Landfill. From mid November through mid December, the facility and the Mayor's office received a number of complaints regarding odors, primarily from the co-composting operations. While we have not made any major changes to our operations, here are a few procedures we have completed and continue to address on a daily basis.

**Co-composting Process**
The co-composting facility processes 150-190 tons per day of household garage, removing the organic fraction in the garbage (paper, cardboard, food waste). Added to the garbage to assist in the breakdown of organics, we utilize 18,000 gallons per day of liquid biosolids (secondary sewage sludge), or approximately 2.5 to 3.0 dry tons of biosolids per day. Once processed in the Dano drums where the organics are separated, the organic material is composted to 28-30 days inside the primary co-compost building, where temperature and moisture are monitored to make certain the compost with biosolids meet EPA biosolids regulations.

**Daily Composting and Odor Control Standard Operating Procedures**

- During the week of December 17, staff moved all unprocessed primary compost that is normally stored in the open secondary containment area to the landfill for use as daily cover. If the moisture levels are elevated slightly, this can be a potential source of odor. Presently no primary co-compost is stored in the open secondary building.
- Any co-compost that has passed the required heavy metals and bacteria testing is moved to a storage pile on the landfill, the volume presently stored on the pad waiting testing is minimal and does not appear to be a major source of odors.

- With the freezing weather, we have not been adding water to the odor control biofilters. The biofilter take the air from inside the co-composting building and send this through a moistened mulch to help lessen odors. Normally we would have enough snow cover to naturally help with the moisture. I have spoken with staff and watering the biofilters is undertaken when weather permits. This will help some in lessening potential odors from this area of the co-compost operations. Maintenance staff has modifying the sprinkler watering system on the north biofilter so additional wood chips can be added to the filter.
- I have met with staff to make certain that our makeup air to the co-compost building is not greater than the air pulled from the co-compost building to the biofilters. The intent is to keep a negative pressure in the building so that any potential odors are contained within the building and the inside air is pulled out through the biofilters. The key to maintaining this operation is to minimize the amount of time the overhead doors are open and to check and make certain all systems are operational. The MRF supervisor monitoring the status to make certain operations staff is following these guidelines.
- We have also looked at other parts of the co-compost operation, including the biofilter that processes the atmosphere from the Dano drums and any potential odors from the biosolids storage silo. These do not appear to be a major contributing factor.
- Our standard operating procedures state that we are not to turn the outside co-compost windrows when winds are out of the south, when potential odors would drift towards the residential areas to the north of the landfill. Our windrow turner is down for maintenance, so these piles have not been turned within the past two weeks.

**Long-term Operational Changes**

While not an immediate option, we are investigating the relocating the secondary refining operations from the present building to a modified secondary building so all operations are contained within an area where odors can be better contained. The original design requires that the primary compost be scooped in a loader bucket, driven out of the primary building, and across the storage lot to the refining building. When high winds are present, we currently have to shut down the entire refining operations due to blowing debris from the discharge shoots. The modified secondary building would eliminate this problem and help to contain odors. Presently we are in the preliminary planning phase on this project.

A second change is a redesign of the biofilters, which take the internal air from the primary co-compost building and filter it through a layer of dampen mulch and wood chips. While our process is a very low tech odor control method, it is not a very efficient way of eliminating all odors. Internally, staff has discussed the option of designing and utilizing our automated co-compost turners utilizing yardwaste compost for a more efficient odor control operation. Maintenance would be much easier and the greater turnover of the media (yardwaste) would assist in odor reduction.

**Response to Odor Complaints**

When an odor complaint is received, we will investigate by driving through the neighborhood. However, with a slight change in winds, we may not always confirm a problem.

Let me know if you need additional details regarding our actions in the co-composting facilities.