

## SCS ENGINEERS

April 19, 2016  
File No. 01210150.01

Mr. Mark zu Hone  
Landfill Operations Program Manager  
City of San Diego  
Environmental Service Department  
Sent via email

**Subject: Review of Air Samples Collected near Miramar Landfill**

Dear Mr. zu Hone:

**SCS Engineers (SCS)** is pleased to present the City of San Diego Environmental Service Department (City) with this review of the air sampling results completed by the San Diego Air Pollution Control District (SDAPCD), which were provided to SCS by the City. SCS has compared the sample results collected on March 9, 2016 and summarized in an undated SDAPCD letter to samples collected by SCS in 2015 and presented in the March 5, 2015, letter *Ambient Air Quality Monitoring Assessment of Landfill Operations at Miramar Landfill, West Phase II, San Diego, CA (Monitoring Assessment)*.

### ANALYTES AND LOCATION

The sampling events by SCS and the SDAPCD differ in the analytes and the sampling locations. These differences may be due to the different purpose of each sampling event.

SCS collected samples to assess worker exposure to air pollutants at the Miramar Landfill and to assess ambient air quality. The sampling included collection of air samples in Summa canisters in the cab of landfill equipment and throughout the landfill area over ten (10) hours. The Summa canisters were analyzed for fixed gases (methane, carbon dioxide, nitrogen, and oxygen) and volatile organic compounds (VOC) by United States Environmental Protection Agency (EPA) Toxic Organic Method 15 (TO-15). The Summa canisters were placed in the cabs of two pieces of landfill equipment and six locations around the West Phase II bowl. Sample locations are shown in the Monitoring Assessment.

The SDAPCD collected four air samples in summa canisters as part of follow-up on an odor complaint. One sample was collected at University City, where the odor complaint occurred. The other three samples were collected at Miramar Landfill. The SDAPCD describes the locations as "by the open face landfill area, near the composting area, and upwind of the landfill." The SDAPCD letter does not provide a map of the sample locations. The samples collected by the SDAPCD were collected over a period of "several seconds." The samples collected by SDAPCD were analyzed for VOCs by TO-15 and reduced sulfur compounds.



## DIFFERENCES IN EVENTS

Critical differences in the sampling events include the location of the samples, the analysis of reduced sulfur compounds, and the sampling duration. Sample locations are not shown on a map for the SDAPCD sampling event, but only the one sampling location near the active face appears to be in the same area as the sampling locations from the SCS sampling event. The SCS sampling event focused on the landfill area, while the SDAPCD sampling event included upwind and downwind locations, plus the composting area.

The SDAPCD sampling event included the analysis of reduced sulfur compounds. It is important to include sulfur compounds in odor-driven sampling because sulfurous compounds tend to have low odor detection thresholds and can contribute strongly to odors from waste facilities. The SCS sampling did not target odorous chemicals. Finally, the sampling duration of the two events is significantly different. SCS collected time-integrated samples over a ten (10) hour period looking at work-day exposures while SDAPCD collected samples over a period of only seconds. Thus, the SCS analysis represents an average condition at the site over the working day while the samples collected by the SDAPCD represent a snap shot of what the ambient conditions were during the brief time the samples were collected.

## RESULTS DISCUSSION

The SDAPCD letter provides a summary of results, but it does not include the analytical reports and detection limits for each analyte. This omission makes it impossible to compare detection limits to odor thresholds. Only the VOCs shown in the letter's Table 1 (propene, 2-butanone, ethyl acetate, methylene chloride, methanol, ethanol, isopropanol) can be compared to odor thresholds, and none of those compounds exceeds their respective odor detection thresholds. Most of the detected chemicals can also be derived from sources other than the landfill, so it is impossible to link a specific chemical with a specific source.

The SDAPCD sampling event did not detect reduced sulfur compounds above the laboratory detection limit of 2.15 parts per billion by volume (ppbv). This laboratory detection limit is not sufficient to detect some compounds such as methyl mercaptan or ethyl mercaptan below their odor detection threshold.

## CONCLUSIONS AND CLOSING

The scope and purpose of the SCS sampling event and the SDAPCD sampling event are significantly different. This different scope and purpose leads to a difference in methodology and analysis between the events. The SDAPCD event was driven by an odor complaint, and the results do not support a conclusion that the Miramar Landfill is driving an odor episode at University City. The results presented by SDAPCD suggest that the Miramar Landfill may contribute to local VOC concentrations, but the concentrations presented do not suggest that significant odors are present. In addition, the detected VOCs presented in the SDAPCD letter were not found at levels that would be considered a health risk.

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Future sampling should consider odor unit sampling and analysis, rather the testing for individual chemicals, to determine if odor thresholds are being exceeded at the Miramar Landfill, within the community, or at nearby sources, which may be contributing factors to odors in the surrounding communities.

Very truly yours,



John Henkelman  
Senior Project Professional  
SCS ENGINEERS



Patrick S. Sullivan, R.E.P.A., B.C.E.S, C.P.P.  
Senior Vice President  
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cc: Steven Cooper, SCS  
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